VARI*LITE®
The Automated Lighting Company

To find the location nearest you contact:

Headquarters
201 Regal Row, Dallas, Texas 75247
Tel: (+1) 214.630.1963
Fax: (+1) 214.630.5867
www.vari-lite.com

Controlling VARI*LITE® Equipment using a DMX512 Console

Reference Guide DMX 5.1
April 1999

VARI*LITE®
The Automated Lighting Company

VARI✻LITE® automated lighting technology is widely recognized as being the world's most versatile and advanced.

This comprehensive reference guide provides you with complete and easy to use information concerning the operation of Series 300 luminaires with DMX512 consoles.

Should you experience any difficulties using DMX512 consoles to control Series 300 luminaires, please contact the technical support department at the Vari-Lite office, distributor or dealer who supplied the rental equipment to you.

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Chapter 1. A Few Notes About Safety

No one can ever be too concerned about the safe setup and operation of a lighting system. Safety should be the prime concern when installing any equipment; it far outweighs any concern about operator convenience, speed of load-in or load-out, or ease of changing-out luminaires that are hung in the air.

1.1 About Power

All components of a VARI✳LITE system use high voltage to operate. When working with electrically powered components and cables, no one should be engaged in any work activity on or near any live conductor(s) without taking maximum suitable precautions. Avoid working on any "live" equipment whenever possible, and never attempt to repair any power cable until you have verified that it is unplugged from all power sources. Take the cable to a suitable work environment away from the AC distribution system. This ensures that the cable cannot be accidentally plugged back into an AC distribution rack while you are repairing the cable.

All power installations need to have a VARI✳LITE AC line disconnect in line between the house service disconnect and the equipment. Place the AC line disconnect in an accessible area, close to the house disconnect. Ensure that the house service has enough current to handle the load you will be placing on it.

Ensure that a qualified electrician does the "tie-in" (installation of tails) and verifies that the service is functioning properly for your event. A generator may be used as an alternative power source if the house power is insufficient.

When installing power, be familiar with the color codes used in your region to signify each phase, as well as neutral and ground. Do not assume the tails will be hooked up correctly; the qualified electrician should use a volt-ohm meter (DVM) or other power measuring device to verify that the tails are installed properly.

Note: Servicing VARI✳LITE equipment is only to be performed by qualified, Vari-Lite trained personnel.

1.2 About Hanging Fixtures

Series 300 luminaires are designed for dry locations only. Exposure to rain or moisture may damage luminaires. Observe all Series 300 input rating label restrictions.

Each fixture or device to be hung must be securely attached so that it cannot come off the truss or pipe (even if the truss or pipe goes 90˚ from horizontal due to a failure of a chain motor or fly system). In addition to mounting hooks, all truss/pipe mounted equipment is provided with a safety cable to prevent the equipment from falling in the event of a truss hook failure. The safety is connected to the equipment's base or other sturdy part, looped around the truss/pipe, and then reattached to the equipment. The cable should be wound to leave as little slack as possible.

When handling or carrying Series 300 luminaires, never lift the fixture by the head. This can cause damage to the tilt mechanism. Hold the luminaire by the hooks, or by squeezing the yoke from the sides.

1.3 About Lamps

Series 300™ luminaires have been designed for use only with certain Philips and Osram HID lamps. Note the lamp type (MSR400, MSR575, HTI600, etc.) before replacing. Installing another type of lamp may be hazardous and may result in damage to the luminaire. These arc lamps are under high pressure when operating, therefore a risk of explosion is possible if the lamp is improperly used.

Always wear eye protection that will shield the eye from possible broken lamp debris as well as to reduce the risk of UV exposure when relamping or optically aligning lamps in luminaires.

Disconnect power and allow the fixture to cool before replacing a lamp. VARI✻LITE luminaires do not use "hot strike" lamps; ensure that the fixture has cooled properly before restarting. Minimum cool-down time is 10 minutes.

Many VARI✻LITE luminaires use an HID type lamp which produces UV radiation. Do not look directly at the lamp. Leave covers installed on luminaires when powered up. There is no UV risk if the luminaire covers are in place.

Chapter 2. Quick Start

Spend time and familiarize yourself with the entire DMX 5.1 User's Manual before setting up your VARI*LITE Series 300 System. In this section, you will find a quick guide to safe and proper system installation.

Note: Some of the terms found in this section are fully explained in the body of this manual. Reference the Appendix for a brief definition.

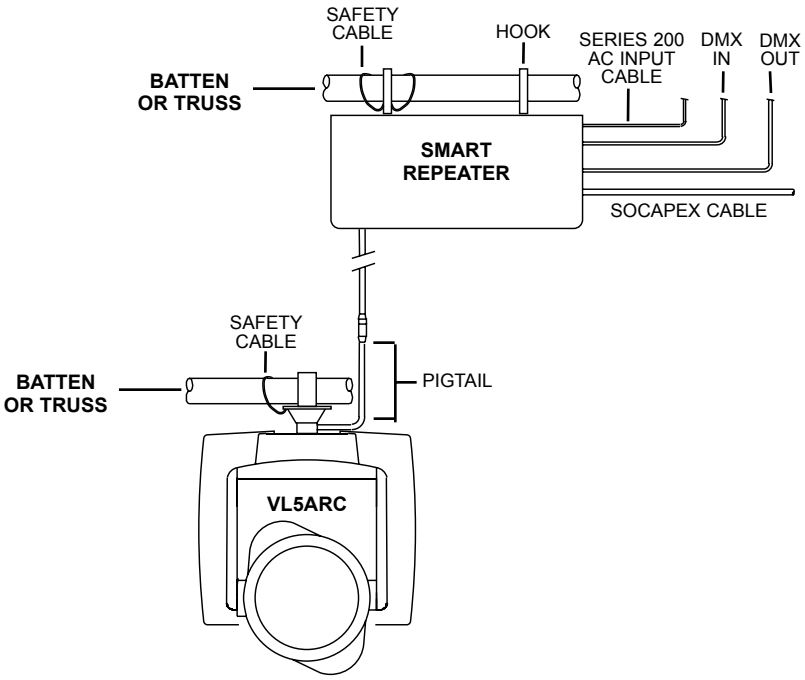
2.1 Hang and Address

The Smart Repeater and Smart Repeater Plus units must be set in one of 10 operating modes (Modes 1-10). See **Section 4.3 Software Modes** for a description of software modes. These modes must be set with power applied to the Smart Repeater unit, which usually only happens after the system has been rigged. It is best if these modes are set prior to rigging the system. If you advise an Account manager of the mode the Smart Repeater units need to be set for, they will be sent to the site properly configured. If you need to do this on-site, see **Chapter 4. System Patching**

Begin hanging your system by following these directions:

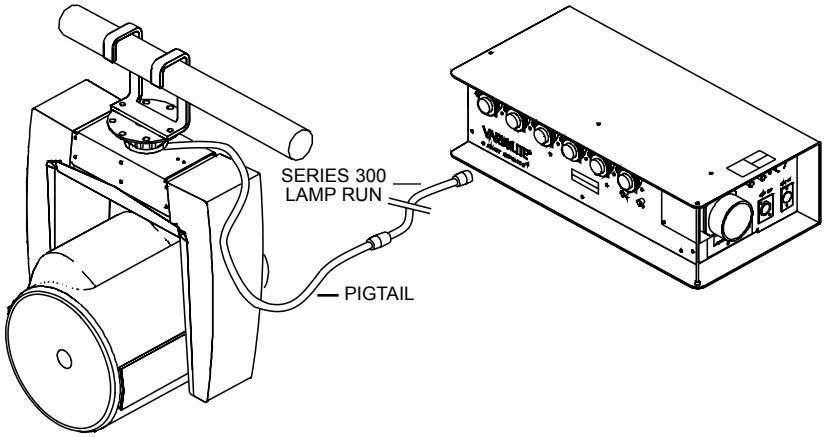
1. Remove each fixture from instrument case, align fixtures by the direction the pigtail faces, and hang on pipe or truss. Thumbscrews should only be finger tight.
2. Secure using the attached safety cable.
3. Affix truss hooks to Smart Repeater™ unit by inserting hooks into the holes on tops or sides of the Smart Repeater unit and twisting 90˚ clockwise. Do not twist further! To remove a hook, twist 90˚ counter clockwise and pull out. Do not twist further!
4. Hang the Smart Repeater unit in a convenient location to both the fixtures and the cables that need to plug in to it.
5. Secure using the attached safety cable.
6. Open the door on the end of the Smart Repeater unit, and assign it an address by pushing the buttons above or below the three digit number.

See diagram on next page.



2.2 Connect Cables to Smart Repeater

Using Series 300 lamp cable, connect each fixture to the Smart Repeater unit. The output ports are labeled as Ports 1-6, with 1 being closest to the Socapex connector. They are wired to circuits 1-6 in the Socapex connector. The cable will run to a Modular Rack (Mod Rack), SixPack Chassis or Dimmer on the stage.



2.3 Connect Cables to Racks

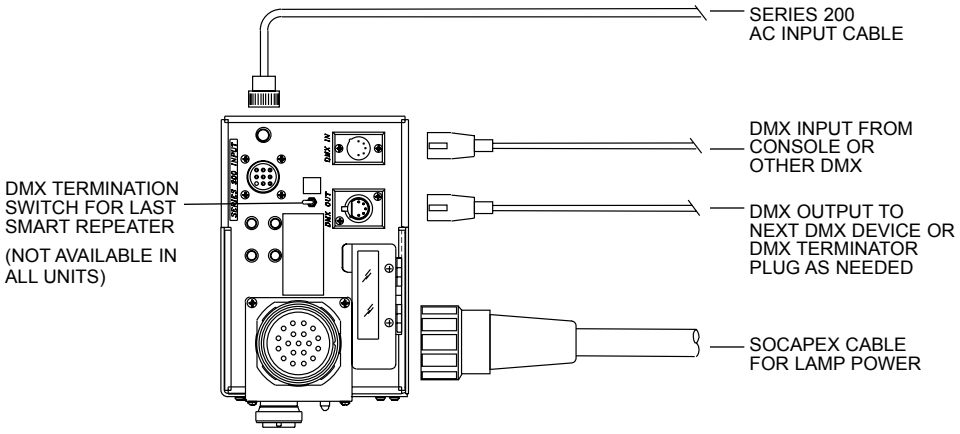
Each Smart Repeater unit requires the following cables in order to run luminaires:

1. DMX signal (remember to terminate the last device in any DMX line), which will come from a console or splitter.

2. AC voltage (a Series 200™ connector to male power plug), which will come from a non-dim circuit or other non-voltage-controlled source.

3. Socapex cable (either a multicore or fan-in) which will come from a SixPack Chassis (if you are using arc fixtures) or dimmers (either in a dimmer rack or in-house circuits on electrics).

Ensure that all these types of cable are present so that your system will operate properly.



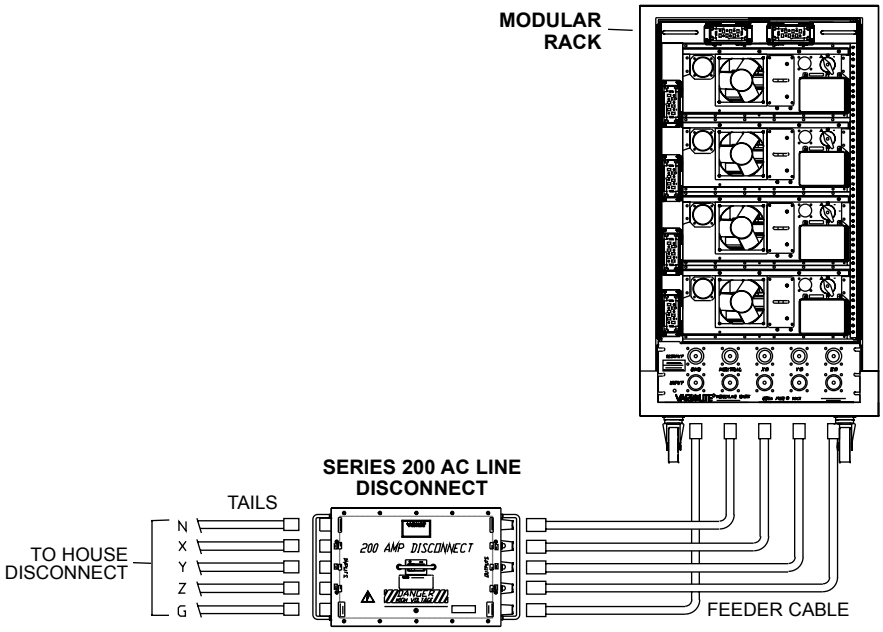
2.4 Connect Power to Racks

Three-phase power will need to be supplied to the system. The maximum recommended Mod Rack power requirement is 200 amps, using 2/0 feeder with 4/0 Cam-Lok connectors and a 200A line disconnect. A SixPack Chassis requires 30 amps, and uses Hubbell or Epic connectors on 8/5 multicore cable. Connector choice is dependent upon location. This cable will need to be run from a house disconnect through a 300A line disconnect to the racks.

Warning: The high voltages required to run this equipment are dangerous. Electrical “tie-ins” should be handled by a qualified electrician

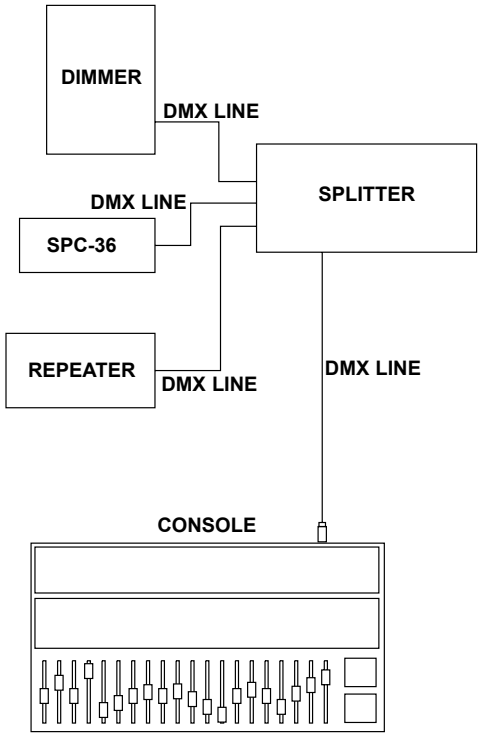
Note: Some equipment in Europe will work using single-phase power. Check with an Account Manager regarding your event.

See diagram on next page.



2.5 Connect Signals to Racks

Set up console and run the control snake. Plug DMX cables (one per universe) into the console and run them to the first DMX unit in line; this first device can be a DMX splitter, which takes one DMX universe in and outputs it multiple times. Or, the DMX cable can run directly to the dimmers and can continue on to other devices from there.



2.6 Start-up and Troubleshooting

Once the system has been hung, cabled and connected to the console via the control snake:

1. Turn on console and ensure that DMX signal is applied to the entire system. Patch your console, or load your show from disk.

2. Apply power to the Smart Repeater units in the system, and watch the luminaires calibrate. Be aware that the luminaires will only calibrate if a valid DMX signal is received. Check the red LEDs on the output port side of the Smart Repeater unit to verify that signal is present.

3. Ensure that the operating mode for each Smart Repeater unit has been properly set. See **Section 4.3 Software Modes.**

4. Once all the luminaires have completed their calibration procedure, select each fixture individually and pan and tilt to ensure control.

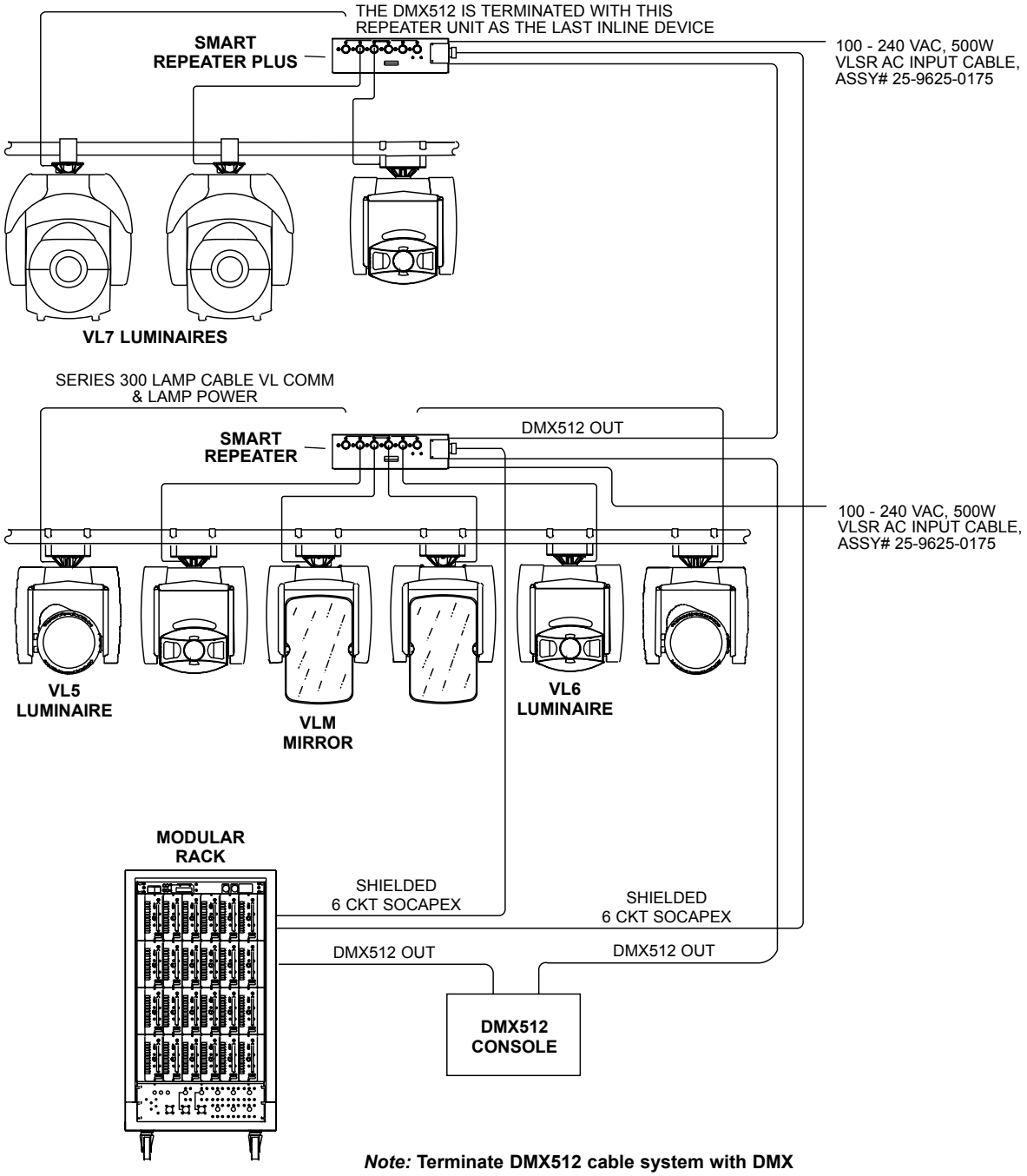
5. Point arc fixtures horizontally and strike the lamps by turning on the switch on the APS6™ module, or through the start/douse channel patched to the SPC36™ SixPack Controller (set level to full).

6. Give arc fixtures an intensity to verify that they are lit. For VL5™ and VL5B™ wash luminaires, ensure that the lamp intensity control channel matches the selected fixture as you pan and tilt them.

7. Continue checking all other attributes to verify proper operation.

8. If there are no problems, you are now ready to begin programming.

The block diagram on the next page gives you an idea of the possible components in an entire system.



Note: **Terminate DMX512 cable system with DMX terminator plug #23-9623-0177 or with the switch provided on some Smart Repeater units.**

Chapter 3. System Set-up

When setting up a lighting system that includes VARI✻LITE Series 300 equipment, there are several separate power requirements needed for the successful operation of the Vari-Lite portion of this system. Your system may require one or more of these specific types of support equipment; consult an Account Manager for the specific equipment list for your event. These power requirements can be broken down by their respective areas, as given below.

Note: The rest of this manual uses American wire gauge (AWG) measurements when describing cables and connectors. For countries outside the US, or for choosing compatible cables, consult the AWG/Metric Conversion Table given below for the appropriate metric equivalent.

AWG	*Metric Max*	*Rated Current*
2/0	67.5 mm	225A
8/5	8.37 mm (5 X 6 mm)	35A

3.1 Luminaires

Luminaires draw their power from the Smart Repeater unit or DMX Power Pack. Beginning with **Section 4. System Patching**, you will find complete information on the entire Series 300 product line, including the VL5 family of wash luminaires (the VL5, VL5B, and VL5Arc luminaires), the VL6™ family of spot luminaires (the VL6 and VL6B™ luminaires), the VL7™ family of spot luminaires (the VL7 and VL7B luminaires), and the VLM™ moving mirror. Please feel free to visit the Vari-Lite website at www.vari-lite.com for more detailed information on these products, including the color and gobo choices for the VL6 and VL7 spot luminaires.

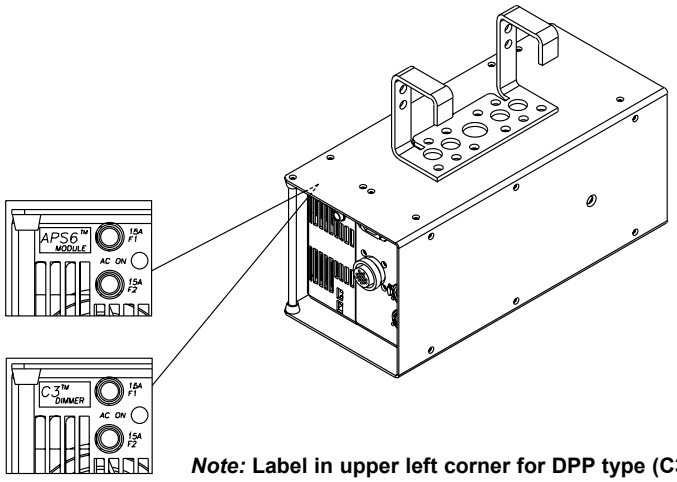
Note: It is important that you align the luminaires so that the pigtail order is consistent; for example, all stage left, all stage right, etc. This way, the luminaires will operate in unison. For more detail on this, refer to **Chapter 6. System Operation**.

Series 300 luminaires can be affixed to square tube or round pipe; the minimum outside dimension for a piece of pipe or tube is 1 inch (2.54 cm), and the maximum outside dimension is 2 inches (5.08 cm). It is not recommended to tighten the thumbscrews down with a wrench; finger tight is sufficient. Remember to always secure the fixture with the safety cable that is supplied with every fixture.

3.2 DMX Power Pack

The DMX Power Pack (DPP) is a portable electronics chassis that provides lamp power and control to a single Series 300 luminaire. The unit receives DMX signal and sends Series 300 protocol to the luminaire. There are three versions of the DPP available: one for the lower power arc fixtures (VL6 VL6B and VL5Arc™ luminaires), one for the high power arc fixtures (VL7 and VL7B luminaires) and one for incandescent fixtures (VL5 and VL5B luminaires). All versions may be used with the VLM, and the high power arc version, the DPP Plus, can also run lower power arc fixtures. Please refer to **Chapter 4.3.2 Setting Operating Modes for DMX Power Pack**. for mode setting information for the DMX Power Pack and Power Pack Plus. The DPP also provides arc lamp control via the reset channel that allows start or douse commands to be given from the console.

The DPP is primarily used to operate Series 300 luminaires under DMX protocol at permanent installations or for small portable systems. The DPP may also be used as a diagnostic tool or demonstration device for Series 300 luminaires. Please refer to **Section 4.3 Software Modes**.



Note: **Label in upper left corner for DPP type (C3 or APS6).**

3.3 Smart Repeater Unit

The Smart Repeater unit is the key to the entire Series 300 system. The control protocol (Artisan™ protocol or DMX512), Smart Repeater unit power and lamp power, all plug into one end of this device. A DMX512 out port is located here also, so signal can be passed along to the next device or ended with a DMX Terminator Plug (#23-9623-0177). Some Smart Repeater units have been modified with an on-board DMX Termination switch. The individual fixtures plug into "output ports" labeled 1-6 along an adjacent side with 1 being closest to the Socapex input connector.

In most circumstances you can run six Series 300 luminaires from a Smart Repeater unit (VL7 and VL7B luminaires must run from a Smart Repeater Plus unit). VL6B luminaires require more power than the VL5 family, the VL6 luminaire or the VLM mirror.

To determine the allowable load on the Smart Repeater unit, use the following "point" system. Each Smart Repeater unit can accommodate six points.

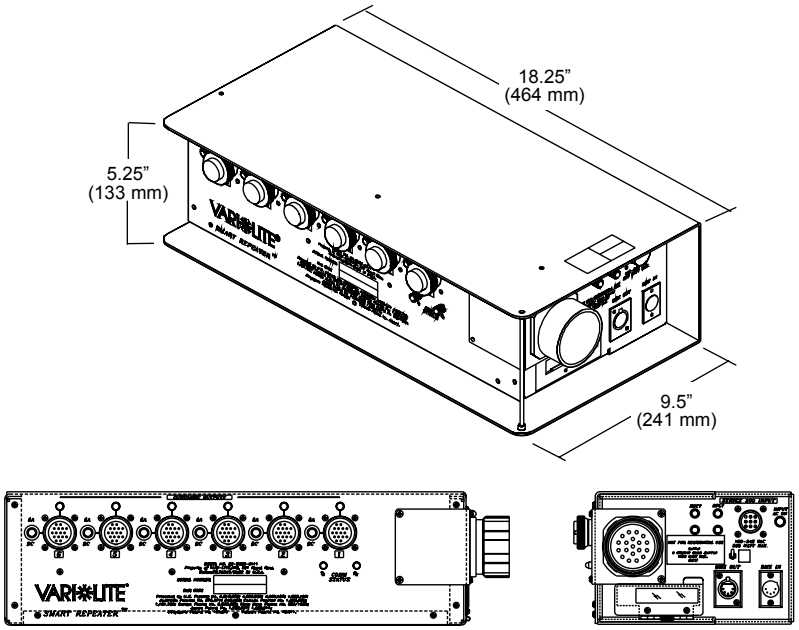
1 VL5	**1 point**
1 VL5Arc	**1 point**
1 VL6	**1 point**
1 VLM	**1 point**
1 VL6B	**2 points**

The Thumbwheel Switch is used to address the Smart Repeater unit to respond to a specific range of DMX channels. To set an address, press the buttons above or below the three digits. The seven-segment LED display found next to the Thumbwheel Switch indicates which mode your luminaires are operating under. It is also the feedback medium for the test software resident in each Smart Repeater unit. For more information on which mode to use for controlling your system, refer to **Chapter 4. System Patching**.

LEDs are provided to assist in troubleshooting: the amber neon indicator next to the Series 200 lamp connector is an indicator of AC voltage at the Smart Repeater unit itself. The two red and two green LEDs are indicators of the bi-directional Series 200 Artisan protocol; these should not be seen when a DMX console is controlling your system. The amber LED found next to the Thumbwheel Switch indicates that the card in the Smart Repeater unit is seeing the proper voltage for it to operate. The two red LEDs on the output port side of the Smart Repeater unit indicate bi-directional Series 300 protocol. These should not be confused with the two red and two green LEDs that indicate the presence of Series 200 protocol. You should always see the Series 300 LEDs flashing after an operating system has been downloaded to the Smart Repeater unit, regardless of the operating system (Artisan protocol or DMX). For more information on the test software, refer to **Chapter 7. Troubleshooting**. The LEDs will only operate once a DMX signal has been received. The luminaire will then calibrate.

If two or more Smart Repeater units are set to the same thumbwheel address, the luminaires connected to the same ports act the same (as if they were "2-ferred"). However, if you do not use all six ports in one of the Smart Repeater units, you can overlap fields to conserve DMX channels.

It is extremely important to know where each luminaire plugs into each Smart Repeater unit, as well as in which "mode" each Smart Repeater unit is running, as this information directly affects how the fixtures operate. Please refer to **Chapter 4. System Patching** for information on the different "modes" of operation and how to patch luminaires in a Series 300 system, and what output port is controlled by what channels,



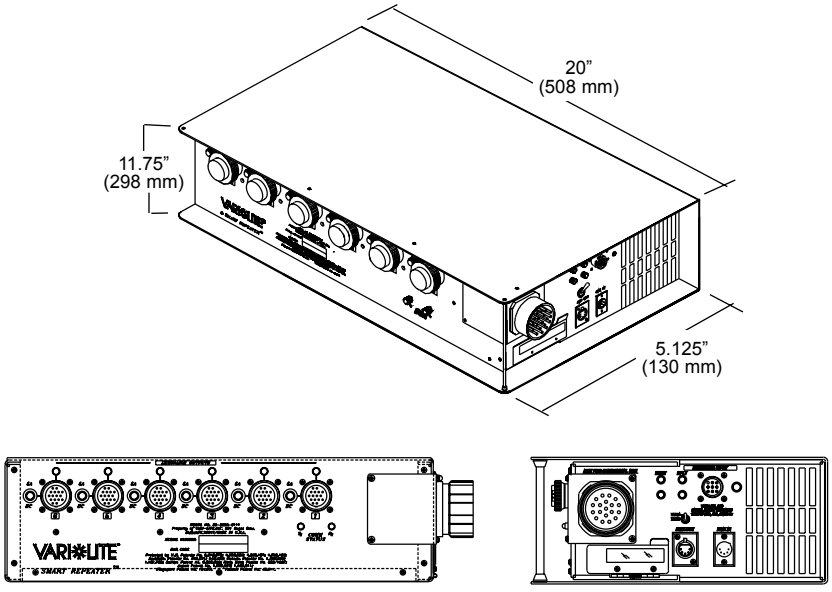
Included with each Smart Repeater unit is a VLSR AC input cable. This cable has a Series 200 (S200) lamp connector on one end, and a male power plug appropriate for your location on the other. You will be supplied with one each per Smart Repeater unit. This cable plugs into the Series 200 male 9-pin AMP CPC connector labeled "Series 200 Input" found on the end of each Smart Repeater unit. It can be extended by using any grounded extension cord or an appropriate adapter to the common plug found in your lighting system. This cable needs to be plugged into a non-dimmed circuit that you have positive control over, as in a non-dim circuit, a wall outlet or a convenience plug. This cable supplies AC voltage to the Smart Repeater unit for luminaire power other than the lamp. It is important that this cable be plugged into a circuit that is not associated with a dimmer (not even one that is stored or parked at "full"), as it is very important that the Smart Repeater unit see full-wave power.

Each system will be supplied with a sufficient amount of Series 300 lamp cable. You will need to connect each luminaire to a Smart Repeater unit using this cable. It is best to supply your Account Manager with a lighting plot or other scale drawing of the lighting system. This way, your rental office will be aware of any specific concerns, and can assist in overcoming any obstacles.

3.4 Smart Repeater Plus Unit

The Smart Repeater Plus unit has the same functionality as a standard Smart Repeater unit with the added features of an active DMX512 termination switch and a cooling fan. Each Smart Repeater Plus unit can provide data and power to any six Series 300 luminaires, and must be used with VL7 and VL7B luminaires; a standard Smart Repeater unit is unable to control VL7 spot luminaires. The Smart Repeater Plus unit uses Modes 7-10 to control the VL7 spot luminaires, and assigns an appropriate number of channels to all output ports.

It is possible to have more than one type of Series 300 arc lamp or C3 powered fixture plugged into a Smart Repeater Plus unit. You can "mix-and-match" different fixture types in this device; however, be prepared to plan for more channels per port, as Modes 7 - 10 "block out" sufficient channels to control all the attributes of a VL7 spot luminaire. Only one mode can be applied to a Smart Repeater or Smart Repeater Plus unit at a time.



3.5 Dimmers

If there are VL5 or VL5B luminaires in your system, you will also need to supply power to the dimmers that are associated with these luminaires. This is not a concern if you are using the house dimming system. However, if you are adding dimmers to your system, or are setting up all the elements of your event, you will need to power your dimmers. In general, most dimmers require three-phase power for operation. You should consult the operating manual provided by your dimmer manufacturer for the proper power requirements for your dimmers.

In addition, some dimmer manufacturers reverse the ground and neutral Cam-Lok connectors on their product. You may need to provide for specific adapters between equipment. Again, consult the manufacturer or their authorized representative for plugging options and adapters.

Unless specifically requested of an Account Manager, you will not receive APS6 cable (AKA Shielded Socapex cable) with the rental of VL5 or VL5B wash luminaires, unless your rental includes C3™ modules and/or dimmers. Speak with your Account Manger for equipment specifics. If the VARI✻LITE system is being installed into an existing light plot, the Smart Repeater units may plug directly into circuits on electrics or battens using a "fan-in"; a male stage pin (or other male plug) to female Socapex adapter. You may need to supply Socapex multicore and breakouts as necessary.

3.6 APS6 Module

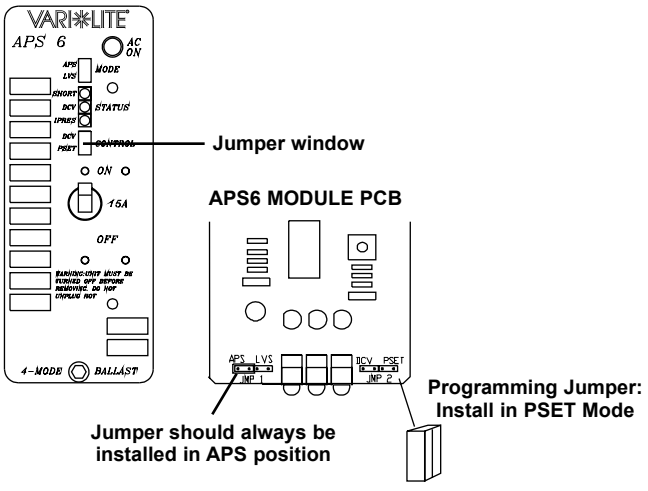
The APS6 module is the lamp power supply (electronic ballast) for the arc lamps used in the VL6 and VL7 family of spot luminaires, and the VL5Arc wash luminaire. There are three different versions of the APS6. The proper wattage must be selected on the module to power the lamp appropriately. By supplying your Account Manager with specific drawings and information, APS modules can be pre-configured and set at your rental location.

3.6.1 APS6 Version 1 (Single Mode)

This APS can only be with the VL6 and VL6B luminaires, as it can only support 400 watt lamps. When working in DMX mode, this module should always be set to 400W PSET operation.

To set this operation mode, the jumper on JMP2 should always be set on the right most two pins (PSET position).

Note: There should always be a jumper installed on JMP1 on the left most two pins (APS position).

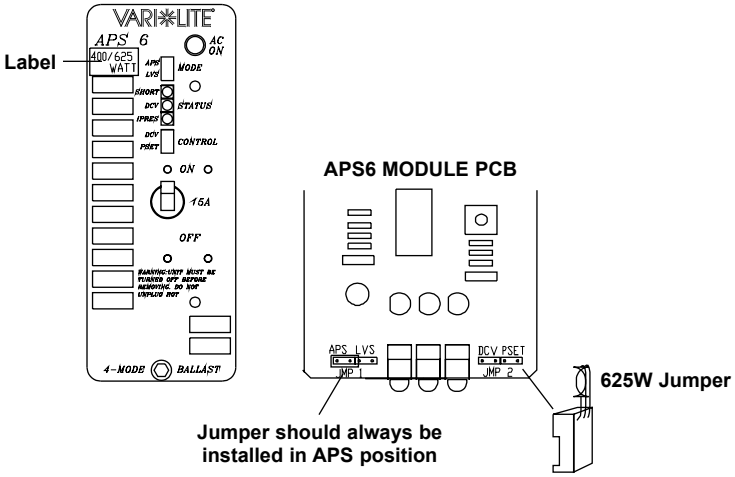


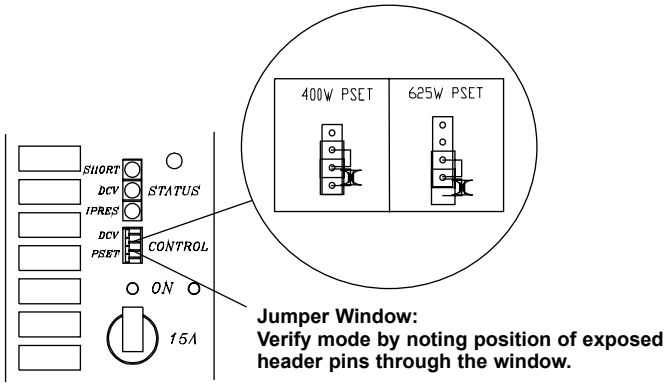
3.6.2 APS6 Version 2 (Dual Mode)

This APS has two power settings, 400 watt (for the VL6 and VL6B luminaires) and 625 watt (for the VL5Arc luminaire). When working in DMX mode, this module should be set to 400W PSET operation (VL6 and VL6B luminaires) or 625W PSET operation (VL5Arc luminaire).

See below for jumper settings for these two modes.

Note: There should always be a jumper installed on JMP1 on the left most two pins (APS position).

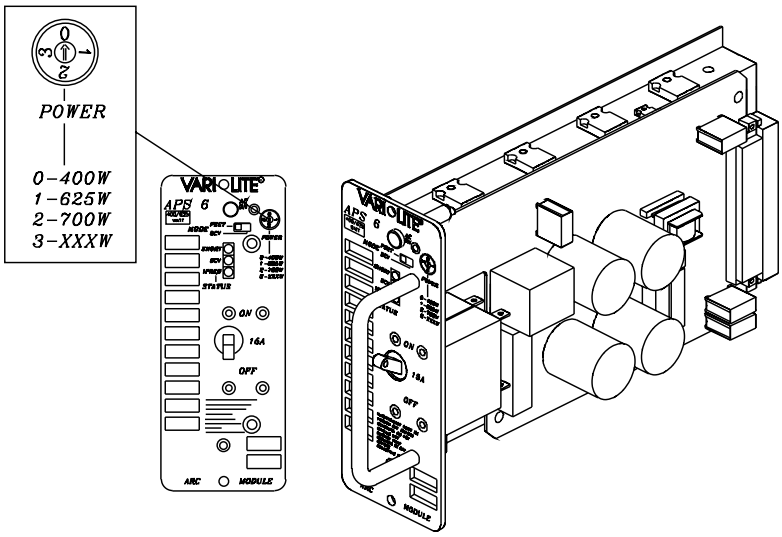




Note: **It is normal for the jumper to hang one pin off the header in 625W PSET mode.**

3.6.3 APS6 Version 3 (700 Watt Mode)

This APS has three power settings, 400 watt (for the VL6 and VL6B luminaires), 625 watt (for the VL5Arc luminaire) and 700 watt (for the VL7 and VL7B luminaires). When working in DMX mode, the PSET/DCV switch should always be set to PSET mode (switch toggled toward the left). Using 3/32 slot screwdriver, rotate the power selector switch to the required output according to the settings list on the face plate.



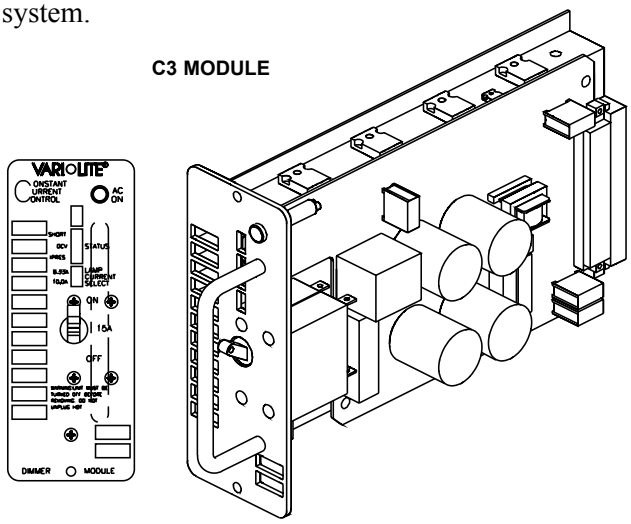
Note: **Four position switch.**

3.7 C3 Module

The C3 module is the lamp power supply/electronic dimmer for high wattage tungsten halogen incandescent lamps. It is used to dim VL5 or VL5B wash luminaires, and is user selectable to control either 120 volt/ 1200 watt, 120 volt/1000 watt or 100 volt/1000 watt lamps.

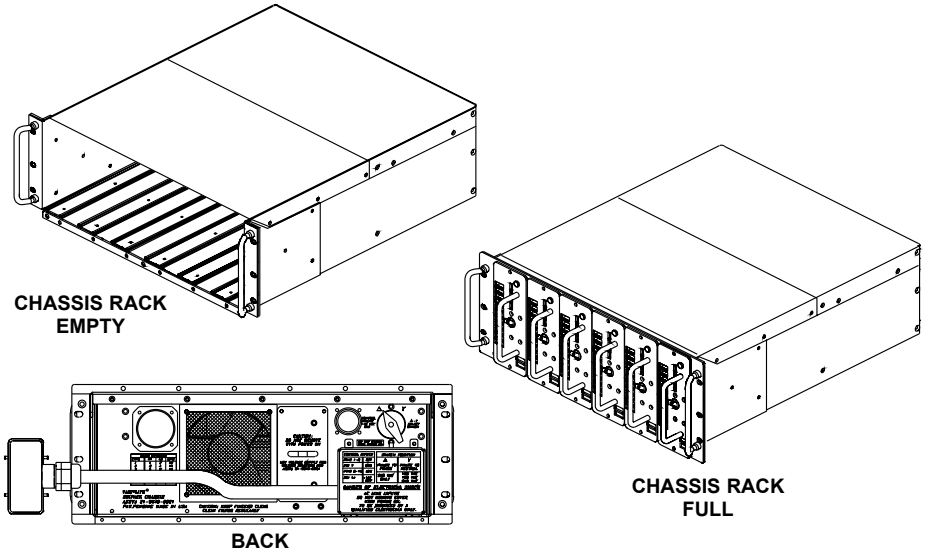
The C3 module must be used in conjunction with an SPC-36 SixPack Controller, which has the required brightness curve for the module in its operating system.

C3 MODULE



3.8 SixPack Chassis

A SixPack Chassis can contain up to six APS6 modules (the lamp power supply for all Series 300 arc based luminaires), up to six C3 modules (Vari-Lite's own dimmer for use with tungsten sources), or any combination of the two devices. Should C3 dimmers be used with your VARI✻LITE system, you will also be supplied with an SPC-36 SixPack Controller. For more information on this device, see **Section 3.10 SPC-36 SixPack Controller**. You will have, as a part of your equipment package, a number of Smart Repeater units; for each Smart Repeater unit, you will also be supplied a SixPack Chassis. In addition, 100 feet of 8/5 feeder cable (1 @ 20', 1 @ 80') and tails (1 @ 10' Hubbell connector to bare end) will be provided. The SixPack Chassis is supplied to provide power for APS6 modules. Be prepared to tie the power cables into a 30 amp, three phase disconnect. This equipment will not work on single phase service. An in-line disconnect will also be provided to help protect the equipment.

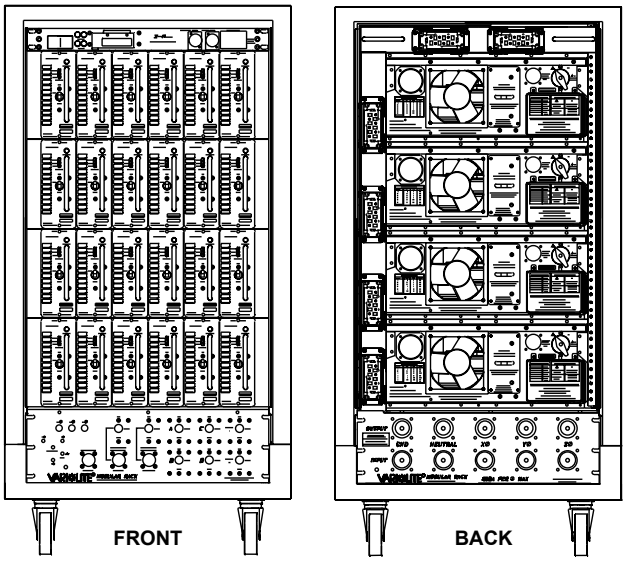


Warning: The high voltage required to run this equipment is dangerous. Electrical "tie-ins" should be handled by a qualified electrician.

Remember -- you will need to position the APS6/C3 modules in the SixPack Chassis so they correspond with fixture placement in the Smart Repeater unit. Just remove the two Allen cap screws with a $^{5}/_{32}$ inch Allen wrench, reposition the APS6/C3 module, and reattach both the APS/C3 module and blanking plate. Blanking plates are the solid aluminum plates that cover the unused ports in a SixPack Chassis. Be sure to attach blanking plates to all non-used module positions, as they aid in the cooling of the chassis. As a rule, the chassis will not be delivered with the modules properly positioned unless a detailed drawing is provided. See **Section 3.10 SPC-36 SixPack Controller** for more information.

3.9 Modular Rack

For larger shows, one or more Modular Racks will be supplied. Each Modular Rack, or "Mod Rack", can power a total of six (6) SixPack Chassis, and up to 36 APS6/C3 modules; four chassis within the Mod Rack itself, and two that can be outboarded by plugging them into the connectors labeled "AUX" that are found on the back and top of the rack.



For this rack, a 200 amp, three phase disconnect is recommended. This is a minimum requirement; consult an Account Manager for system-specific power requirements. The Mod Rack comes standard with 4\0 Cam-Lok (specifically E1016 series or equivalent) in and out connectors. As a part of a standard order, 100 feet of 2\0 feeder cable (1 @ 20', 1 @ 80') and tails (1 @ 10' female Cam-Lok to bare end) will be included. If you are connecting a Mod Rack "inline" with other equipment such as dimmers, remember that some manufacturers reverse the ground and neutral connectors on their product, and Vari-Lite does not.

Up to a total of two Mod Racks can "link" together by using additional feeder cable. If the Mod Rack is being used as a stand-alone unit, be sure to leave the rubber covers on female output Cam-Lok connectors.

Note: Linking Mod Racks is OK; it is not recommended to link Mod Racks and dimmers.

A Series 200 AC line disconnect rated for 200 amps will also be supplied to protect this equipment. It should be placed after the house service and before the Mod Racks, and must also be used as a part of the daily shut down procedure. Vari-Lite requires this disconnect in the VARI✻LITE system and it should be placed in an accessible position within 10 feet of the source disconnect. This disconnect should be turned off when the system is not in use.

Note: Do not use more than two Mod Racks on any one 200 amp service.

To safely operate a VARI✳LITE system (or any lighting system), the load (total current draw of the system) must be phase-balanced (evenly spread across all three phases). This will ensure that neither the VARI✳LITE AC line disconnect nor the house disconnect will trip due to excessive load on a single phase. Phase balancing is especially important when a generator is used to provide power for a lighting system. If the phases are not balanced, the AC waveform can be altered, causing electrical equipment to malfunction. This could result in a generator shutdown.

Along with any Mod Racks required for your system, APS6 cable may also be included with a Vari-Lite rental package, to be used as the multicore cable between the Mod Rack and Smart Repeater units. Unless specifically requested of an Account Manager, APS6 cable will only be included with the rental of VL6 or VL7 spot luminaires, or VL5Arc wash luminaires. This cable is specifically made to operate VARI✳LITE arc lamp fixtures, and contains a shield to eliminate the RF emitted by the current traveling between the power supply and the lamp.

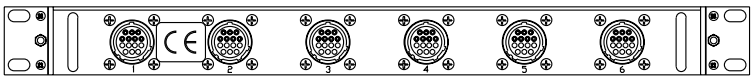
As with any rental order, discuss feeder and cable requirements with an Account Manager. These are only guidelines for a standard equipment order contracted through a Vari-Lite office.

3.10 SPC-36 SixPack Controller

If your event requires the use of the VARI✳LITE C3 dimmer module, a SPC-36 SixPack Controller is necessary to provide an interface from your console to the dimmer. Using C3 dimmers allows your event to place incandescent VL5 wash luminaires in the same Smart Repeater unit as an arc fixture. The SPC-36 will translate either Artisan protocol or DMX512 into a 0 - 10vDC signal to control the intensity of the C3 dimmer. In this case, you will be provided with APS6 cable. Speak with an Account Manager for specific information.

FRONT

BACK



The SPC-36 SixPack Controller has a row of six cables plugged into the back of the device. When using a Mod Rack, plugs labeled 1 through 4 on the back of the SPC-36 SixPack Controller will be plugged into SixPack Chassis labeled A through D. Plugs 5 and 6 are reserved for any auxiliary SixPack Chassis that might be used. Ensure that these are plugged in properly, and that the SPC-36 SixPack Controller is addressed and has proper voltage applied to it via the Series 200 Lamp Run.

Set the thumbwheel switch on the SPC-36 as you would address your dimmer rack, and patch your dimmers accordingly. For example, if the SPC-36 SixPack Controller is addressed at 001, module 1 in SixPack Chassis 1 would be dimmer 1, and would continue through dimmer 6. Dimmer seven would be module one in SixPack Chassis two, and so on. Ensure that each of the six cables coming out of the SPC-36 SixPack Controller are properly plugged into each of the appropriate inputs on the SixPack Chassis unit.

3.11 System Set-up Tutorial

Before setting up a VARI✻LITE system, be familiar with this section in particular; it will assist in organizing the order of how a system should be set up. Please use this as a guideline; you will eventually develop an organizational system of "how-to's" when setting up a system comprised of both automated and conventional fixtures.

A light plot can be used to specify Smart Repeater unit placement, cable lengths and other pertinent information that an Account Manager can use in the office, or that electricians and crew members can use onsite. This information can also be used to determine a schedule for equipment setup. In addition, your Account Manager should be advised of which mode should be set for each Smart Repeater unit.

By having crew members work on more than one project at a time, the system can be set up quickly and efficiently. During the hanging and cabling of the system, ensure that the luminaires are oriented properly by checking the direction of the pigtail found at the fixture's hook. Make sure cables do not hang down and impede the luminaire's movement. They should have an order: all pointed stage left or stage right, or downstage fixtures one way and upstage fixtures the other. This allows the lights to move in a like manner when all fixtures are selected and moved at the same time. As a final check, ensure that your fixtures are safely secured to the pipe or truss, the safety cable has been secured, and that the fixture can move without interference from cables or other equipment hung in its vicinity. Once you have completed this final checkout, you can begin to "power up" your system.

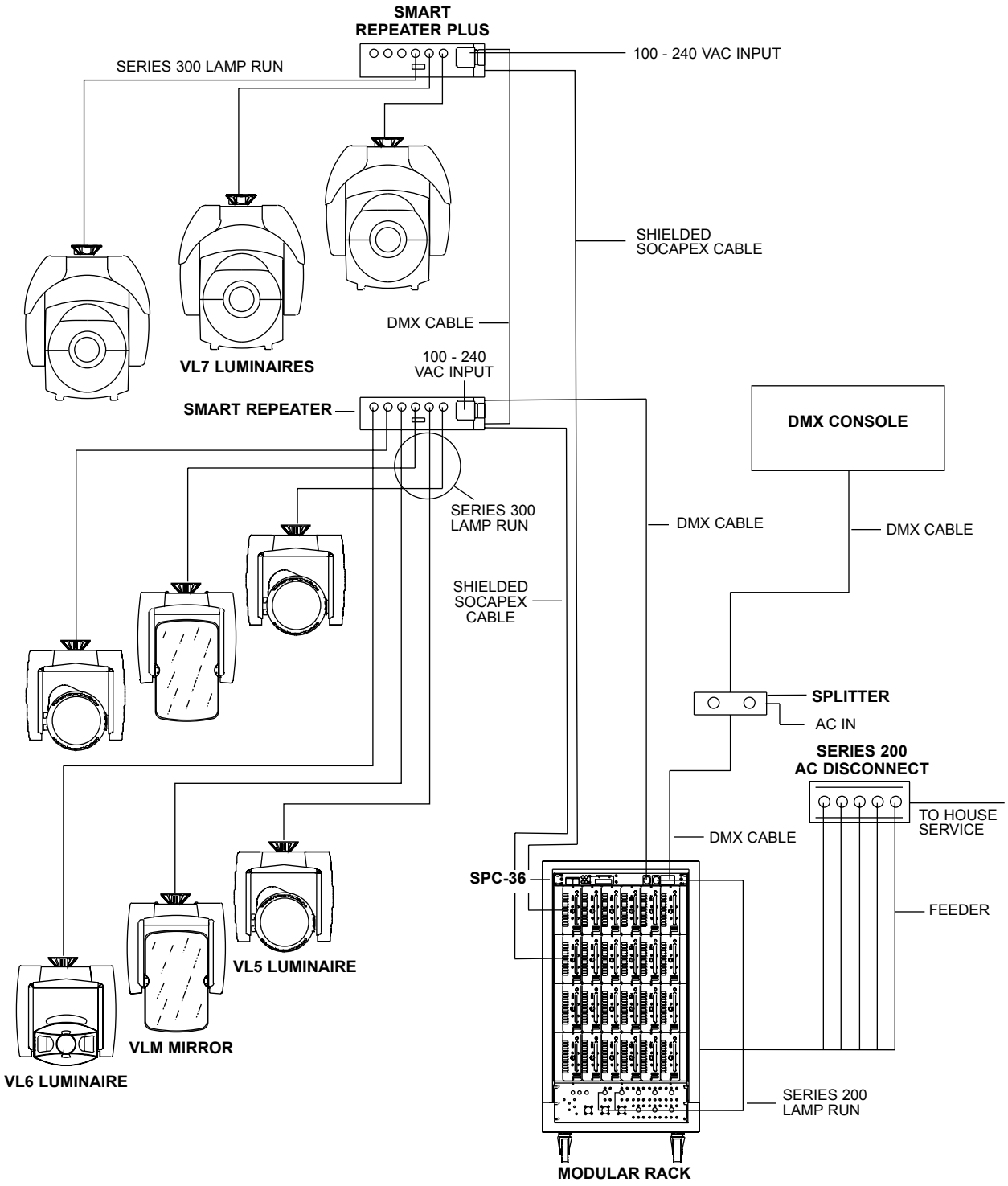
Before applying AC voltage to the Smart Repeater units, ensure that there is a control signal applied to your system. When the Smart Repeater unit receives power, it automatically looks for a control signal, and then sends the appropriate operating system (OS) download to the luminaires. Ensure that this happens by watching the two red LEDs on the output port side of the Smart Repeater unit. Notice that one of them will shine brightly; this denotes a Series 300 OS broadcast to the luminaires. Shortly after it begins flashing, the fixtures associated with that Smart Repeater unit will begin their calibration procedure. Take care to ensure that each Smart Repeater unit has its own individually circuited power supply, and that each control device (non-dim circuit, AC outlet, etc.) is properly marked. A production electrician may be called upon to reset this switch during the event.

When an Artisan console is controlling the system, upon completion of the calibration procedure the fixtures will automatically go to “zero position”: 180˚ out from a pan stop, and 135˚ out from a tilt stop. This is the position that is exactly in the middle of travel for these attributes. Under DMX control, this position is known as “50/50”, or a 50% pan value and 50% tilt value. You will need to create this 50/50 position in most consoles (some consoles will do this for you); store it as a home position/group. Always begin any focus from this position, and tilt the fixture first before panning. If this becomes a pattern for focusing a fixture, a “flipped focus” will virtually be eliminated from your focus groups.

3.12 System Diagram

Following is a block diagram to assist in the setup of your event. It shows cable routings, plugging information and generally describes how a system is wired.

Note: These drawings are representative only, and are not drawn to scale.



Chapter 4. System Patching

Current DMX consoles can be broken down into two primary types: fixture-library based and channel based. Determine which type of console will be controlling your system, and read the appropriate section detailing its operation.

Occasionally, a VARI✻LITE system will be controlled by an architectural lighting controller. Please consult with a dealer or manufacturer for specific instructions for your architectural control device.

Note: Please remember that this is a user's guide to the Vari-Lite portion of your system. For specific storing syntax, cue playback options or other board commands, refer to the operation manual for your specific console.

4.1 Fixture-Library Consoles

Current state-of-the-art DMX consoles are software-based desks that control automated luminaires and conventional fixtures, as well as any other DMX device (fogger, strobe, color scroller, etc.) in a lighting system. The advantage of a fixture-library console is that the manufacturer has "done the hard work" by creating libraries of automated fixtures and devices that the console recognizes. The properties of each device are stored in a "library," and can be patched using the identification method of the console being used.

Consider using a 16-bit compatible console for very smooth movement. For even smoother response, be prepared to use a software mode that provides timing channels, see **Section 4.3 Software Modes**. This will cause the luminaires to perform much as they do under Artisan control. You will find complete information on timing channels and how to use them in **Chapter 6. System Operation**.

Note: Vari-Lite does not provide to users or guarantee compatibility with third-party (console manufacturer's) fixture libraries. Specific questions should be addressed to the particular console manufacturer.

4.2 Channel Based Consoles

Older DMX consoles were never specifically designed to control automated luminaires of any type. These consoles typically operate in an 8-bit environment. If you are using one of these consoles, consider using the timing channels offered in Mode 2, 4, 6, 8 and 10 in our DMX 5.1 software. You will find complete information on timing channels and how to use them in **Chapter 6. System Operation**.

4.3 Software Modes

There are 10 software modes available for use in the Smart Repeater or Smart Repeater Plus units, allowing optimized control options for your lighting system. Following are brief descriptions of the modes and how to access them. If more information and assistance is required, consult an Account Manager, Dealer or Product Support Technician.

Mode 1: 8-bit Mode with Reset - Supports the VL5, VL5B and VL5Arc wash luminaires, the VL6 spot luminaire, and the VLM unit. To set Mode 1, set the thumbwheel to 901. Uses one DMX channel for each parameter, plus a reset channel. Mode 1 requires 8 channels per luminaire output port for a total of 48 channels per Smart Repeater unit.

Mode 2: Extended 8-Bit Mode - Supports all of the functions of Mode 1, and adds three timing channels for beam, color and focus parameters, mini-stepping for VL6 wheels and the reset channel. To set Mode 2, set the thumbwheel to 902. Mode 2 requires 11 channels per luminaire output port for a total of 66 channels per Smart Repeater unit.

Mode 3: 16-Bit with Reset - Supports the above luminaires and functions, but uses two channels for pan (coarse and fine) and two channels for tilt (coarse and fine). To set Mode 3, set the thumbwheel to 903. Mode 3 requires 10 channels per luminaire output port for a total of 60 channels per Smart Repeater unit.

Mode 4: Extended 16-Bit - Supports all of the functions of Mode 3, and adds three timing channels for beam, color and focus parameters. To set Mode 4, set the thumbwheel to 904. Mode 4 requires 13 channels per luminaire output port for a total of 78 channels per Smart Repeater unit.

Mode 5: 16-Bit with Reset - Supports all of the functions of Mode 3, but adds support for the VL6B luminaire, and a strobe channel for the VL6 luminaire. To set Mode 5, set the thumbwheel to 905. Mode 5 requires 14 channels per luminaire output port for a total of 84 channels per Smart Repeater unit.

Mode 6: Extended 16-Bit - Supports all of the functions of Mode 4, but adds support for the VL6B luminaire, and a strobe channel for the VL6 luminaire. To set Mode 6, set the thumbwheel to 906. Mode 6 requires 17 channels per luminaire output port for a total of 102 channels per Smart Repeater unit.

Mode 7: 16-Bit with Reset - Supports all of the functions of Mode 5, but adds support for the VL7 luminaire. To set Mode 7, set the thumbwheel to 907. Mode 7 requires 17 channels per luminaire output port for a total of 102 channels per Smart Repeater unit.

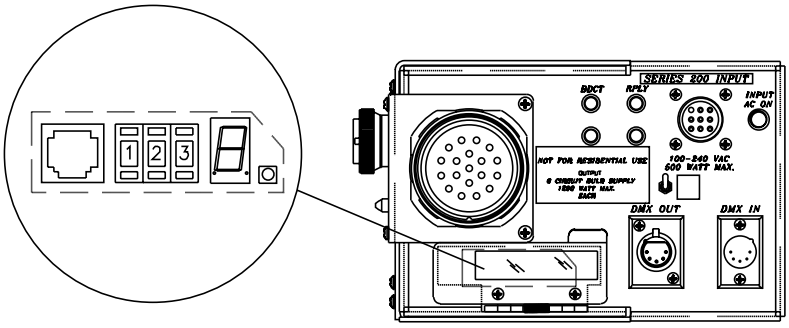
Mode 8: Extended 16-Bit - Supports all of the functions of Mode 6, but adds support for the VL7 luminaire. To set Mode 8, set the thumb wheel to 908. Mode 8 requires 20 channels per luminaire output port for a total of 120 channels per Smart Repeater unit.

Mode 9: 16-Bit with Reset - Supports all of the functions of Mode 7, but adds support for the VL7B luminaire. To set Mode 9, set the thumbwheel to 909. Mode 9 requires 24 channels per luminaire output port for a total of 144 channels per Smart Repeater unit.

Mode 10: Extended 16-Bit - Supports all of the functions of Mode 8, but adds support for the VL7B luminaire. To set Mode 10, set the thumbwheel to 910. Mode 10 requires 27 channels per luminaire output port for a total of 162 channels per Smart Repeater unit.

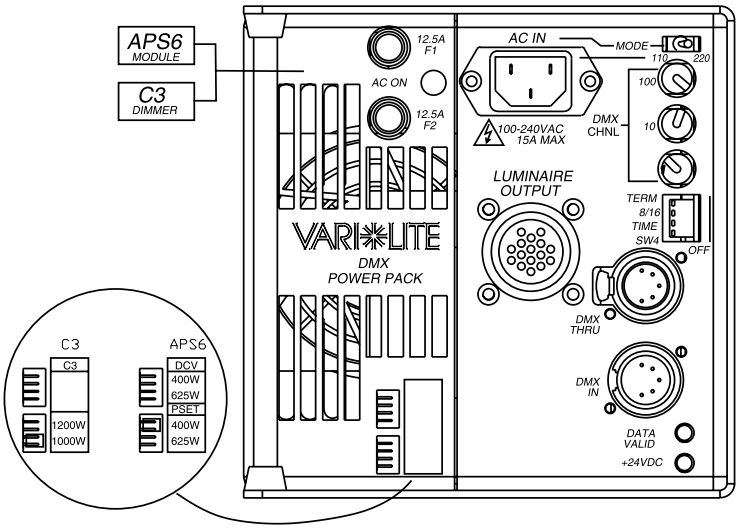
4.3.1 Setting the Operating Mode for the Smart Repeater

Setting or changing the mode of Smart Repeater or Smart Repeater Plus units is quick and easy. With no signal applied (Artisan or DMX), set the thumbwheel to the mode number you have chosen, and apply power to the Smart Repeater or Smart Repeater Plus unit (plug it in). After a moment, a character of one of the numbers 1-9 or the letter “A” (hexadecimal 10) will be seen in the seven-segment display. Your mode is now set, and will stay that way until it is reassigned. Remember that you may have multiple modes in your system. Modes 5 and 6 add support for the VL6B luminaire, while Modes 7-10 add support for the VL7 and VL7B spot luminaires. These modes will support other Series 300 luminaires plugged into a Smart Repeater Plus unit by blocking out the number of channels required for a VL7 or VL7B spot luminaires. This must be taken into account when patching fixtures plugged into this device. Once the mode is set, readdress the Smart Repeater/Smart Repeater Plus unit and apply signal. The seven-segment display will alternately flash the letter “d” and the mode number. The “d” signifies that the Smart Repeater unit is operating using a DMX operating system. The “d” will only appear once a DMX signal has been received.



4.3.2 Setting the Operating Mode for the DMX Power Pack

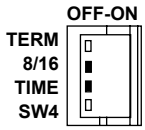
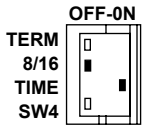
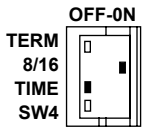
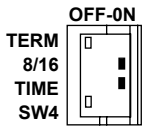
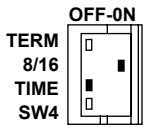
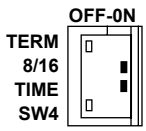
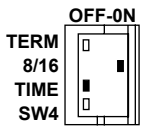
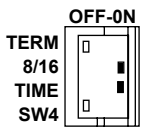
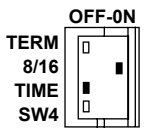
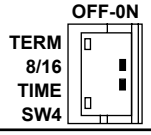
When power is applied to the DMX power pack, the unit detects which luminaire is connected. A four position switch on the front panel is used to select mode options. Modes 1-4 are used to operate the VL6, VL5, VL5B, VLM and VL5Arc luminaires. Modes 5 or 6 can be used for the VL6B luminaire. Modes 7 and 8 are used for the VL7 luminaire, while Modes 9 and 10 are used with the VL7B luminaire.



Note: **The TERM and SW4 switch settings do not effect the DMX mode.**

4.3.3 Mode Setting Table for the DMX Power Pack

The following table illustrates the correct switch settings for Modes 1-10.

DMX POWER PACK VERSION	SWITCH SETTING	CHANNELS REQUIRED	MODE NUMBER
Operates VL5, VL5Arc. VL5B, VL6 and VLM luminaires		8	1
		11	2
		10	3
		13	4
Operates VL6B luminaires		14	5
Operates VL6B and luminaires in extended mode		17	6
Operates VL7 luminaires		17	7
Operates VL7 luminaires in extended mode		20	8
Operates VL7B luminaires		24	9
Operates VL7B luminaires in extended mode		27	10

4.4 Patching A Fixture Library Console

Each automated luminaire is generally given a fixture number. Most operators have created their own system for numbering the luminaires in their system. An example would be to number the fixtures consecutively from downstage right working across each truss or batten, then moving upstage and back to stage right to the next position and continuing the process. This numbering system is generally based on the fixture's position in the system and makes numeric sense. Alternately, each type of fixture can have a number in a range; all the VL5 wash luminaires start with 100, the VL6 spot luminaires with 200, etc. This numbering system is not necessarily based on the fixture's position in the lighting system. The United States Institute for Theatre Technology (USITT) has also established a methodology for numbering the fixtures in a lighting system; please consult their literature for the specifics of this method. Decide upon a numbering system, and then begin to patch.

Patching will pair the fixture number and the DMX address to a control channel. When patching a VL5 or VL5B wash luminaire, do not forget to patch dimmer channel to the intensity control channel for the fixture. For example, to patch four VL5 wash luminaires, you would note the thumbwheel address of the Smart Repeater unit, decide on a control channel number, then patch this at the console using the appropriate syntax. Remember to take into account which DMX universe is chosen; control problems can occur if the patching does not occur in the proper universe. Many consoles currently can have up to four DMX universes, each with 512 channels.

At this point, continue to patch the fixtures and other DMX devices until the show is patched. It is often a good idea to check the patch in progress; that way problems can be dealt with as they occur. When you are done patching and troubleshooting your system, programming can begin. For information on troubleshooting a system, see **Chapter 7. System Troubleshooting**.

4.5 Patching A "Channel-Based" Console

Channel based consoles force an operator to patch fixture parameters one channel at a time. As above, once the numbering system has been determined for the fixtures, patching the console can begin. However, the fixture number will now be a "group" number. You will need to make a group of channels for each fixture and store it as the fixture number. Remember when patching a VL5 or VL5B wash luminaire to patch dimmer channel to the intensity control channel for the fixture. Most channel based consoles will operate only in an 8-bit environment; you should be prepared to patch at least seven channels per luminaire plus the intensity channel if using Mode 1, or up to 11 channels per luminaire if using Mode 2.

Note: The VL6B, VL7 and VL7B luminaires do not have a mode for 8-bit control.

With a channel-based console, using Groups to control the positioning, color, gobo and beam shaping functions will make the job of programming your show easier.

4.6 Using the Console to Make Programming Easier

Though different console manufacturers use different syntax, they can all achieve the same goal: store often-used data that can be recalled at a keystroke in a manner that makes it easy to access. Libraries, focus points, groups and palettes are different manufacturers' terms, but all refer to memory locations that can be assigned to specific parameters. Color, gobo and beam parameters (edge, diffusion, beam size) can all be stored in these groups and recalled with a few keystrokes. On consoles where this is applicable, groups can be stored in ranges, making it easier to recall information. For example, Color Groups can be stored in Groups 50 to 70, Gobo Groups in 80 to 95, and so on. The same can be said for certain other groups like libraries.

Note: Some consoles define groups globally, others require the programmer to create a hard value for each fixture for the particular parameter being stored in the group. A global group is stored for a whole fixture type from only one fixture, making storing a simpler task.

Many fixture-library based consoles also provide an added feature: updatable preset focus or focus points. These are special groups reserved for position focus; however, they can be used for anything that might be changed throughout the entire cue list of a show. Any and all cues built and stored from an updatable preset focus group can be adjusted by refocusing and restoring the group. The cues then reference this group for positioning or other information as recorded.

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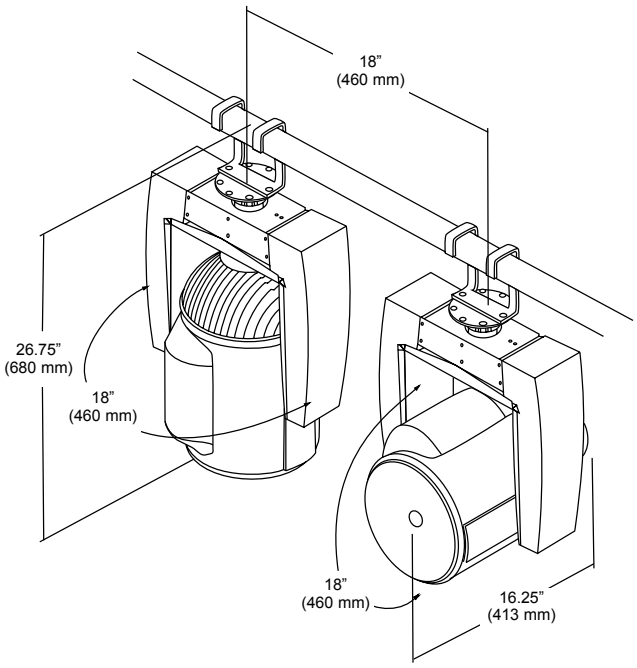
Chapter 5. Series 300 Product Information

This section provides specific information on fixtures, as well as VL5 and VL7 family gel color match information. Use this information to create color groups for your VL5, VL5B, VL5Arc, VL7 and VL7B luminaires that match the gel or other automated fixtures in the lighting system. Additionally, you will find information on attribute assignment used for patching. Check the Vari-Lite web page at www.vari-lite.com for the current list of available VL6 and VL6B colors, and VL6, VL6B, VL7 and VL7B gobos.

5.1 VL5 and VL5B Wash Luminaire



Weight: 25 lbs (11.3 kg), Series 300 molded plastic six luminaire case - 144 lbs (65 kg)

Dimensions: 18 x 26.75 x 16.25 in. (460 x 680 x 413 mm) with hook.

Required Clearance: 18 x 18 x 26.75 in. (457 x 457 x 680 mm) with hook.

Operating Temperature: Heat Sink 450°F (232°C) and Lens 100°F (38°C). Allow minimum of ten minutes for cool down.

VL5 Lens Type/PAR Lamp Equivalent

Lens	PAR Lamp
Clear	Very Narrow
Light Stipple	Narrow Spot
8-Row Lenticular	Narrow Flood
10-Row Lenticular	Medium Flood
12-Row Lenticular	Wide Flood

Series 300 Lamp Cable Lengths

Unshielded Lamp Cable (Gray Jacket)	*Shielded Lamp Cable (Black Jacket)*	*Color Code*
4'	**6'**	**WHITE**
8'	**12'**	**RED**
16'	**20'**	**YELLOW**
40'	**50'**	**ORANGE**
100'	**100'**	**BLUE**

**Unshielded Lamp Cables should only be used with incandescent source luminaires or the VLM. Unshielded and Shielded lamp runs should not exceed 300 ft (91.4 m).*

5.1.1 VL5 and VL5B Channel Assignments

Mode 1 (8-bit)

1 External Dimmer*
2 Pan
3 Tilt
4 Blue
5 Amber
6 Magenta
7 Diffusion
8 Reset

Mode 2 (Extended 8-bit)

1 External Dimmer*
2 Pan
3 Tilt
4 Blue
5 Amber
6 Magenta
7 Diffusion
8 Focus Time
9 Color Time
10 Beam Time
11 Reset

Mode 3 (16-bit)

1 External Dimmer*
2 Hi Byte of Pan
3 Lo Byte of Pan
4 Hi Byte of Tilt
5 Lo Byte of Tilt
6 Blue
7 Amber
8 Magenta
9 Diffusion
10 Reset

Mode 4 (Extended 16-bit)

1 External Dimmer*
2 Hi Byte of Pan
3 Lo Byte of Pan
4 Hi Byte of Tilt
5 Lo Byte of Tilt
6 Blue
7 Amber
8 Magenta
9 Diffusion
10 Focus Time
11 Color Time
12 Beam Time
13 Reset

Mode 5 (16-bit)

1 External Dimmer*
2 Hi Byte of Pan
3 Lo Byte of Pan
4 Hi Byte of Tilt
5 Lo Byte of Tilt
6 Blue
7 Amber
8 Magenta
9 Diffusion
10 Reset
11-14 Unused

Mode 6 (Extended 16-bit)

1 External Dimmer*
2 Hi Byte of Pan
3 Lo Byte of Pan
4 Hi Byte of Tilt
5 Lo Byte of Tilt
6 Blue
7 Amber
8 Magenta
9 Diffusion
10 Focus Time
11 Color Time
12 Beam Time
13 Reset
14-17 Unused

****Mode 7 (16-bit)**

1 External Dimmer*
2 Hi Byte of Pan
3 Lo Byte of Pan
4 Hi Byte of Tilt
5 Lo Byte of Tilt
6 Blue
7 Amber
8 Magenta
9 Diffusion
10 Reset
11-17 Unused

****Mode 8 (Extended 16-bit)**

1 External Dimmer*
2 Hi Byte of Pan
3 Lo Byte of Pan
4 Hi Byte of Tilt
5 Lo Byte of Tilt
6 Blue
7 Amber
8 Magenta
9 Diffusion
10 Focus Time
11 Color Time
12 Beam Time
13 Reset
14-20 Unused

*****Mode 9 (16-bit)**

1 External Dimmer*
2 Hi Byte of Pan
3 Lo Byte of Pan
4 Hi Byte of Tilt
5 Lo Byte of Tilt
6 Blue
7 Amber
8 Magenta
9 Diffusion
10 Reset
11-24 Unused

*****Mode 10 (Extended 16-bit)**

1 External Dimmer*
2 Hi Byte of Pan
3 Lo Byte of Pan
4 Hi Byte of Tilt
5 Lo Byte of Tilt
6 Blue
7 Amber
8 Magenta
9 Diffusion
10 Focus Time
11 Color Time
12 Beam Time
13 Reset
14-27 Unused

*When a DMX Power Pack is used, the first port channel controls the integral C3 dimmer module for the VL5 and VL5B luminaires.

**These modes are required if a VL7 spot luminaire is used on the same Smart Repeater Plus unit as the VL5 and VL5B luminaires.

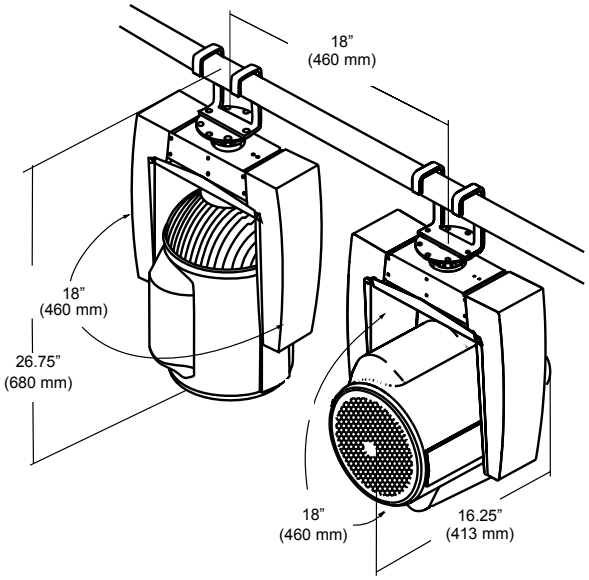
***These modes are required if a VL7B spot luminaire is used on the same Smart Repeater Plus unit as the VL5 and VL5B luminaires.

When working in extended modes, the timing channels affect parameters as noted.

- **Focus -** pan, tilt
- **Color -** blue, amber, magenta
- **Beam -** diffusion

Reset Value - With a numerical key pad, set the reset channel to DMX 84 or 33%, hold for three seconds and set channel to zero. The luminaire will now recalibrate.

5.2 VL5Arc Wash Luminaire



Weight: 29 lbs (13.2 kg), Series 300 molded plastic six luminaire case - 144 lbs (65 kg)

Dimensions: 18 x 26.75 x 16.5 in. (460 x 660 x 413 mm) with hook.

Required Clearance: 18 x 18 x 26.75 in. (457 x 457 x 680 mm) with hook.

Operating Temperature: Heat Sink 275°F (135°C) and Lens 100°F (38°C). Allow minimum of ten minutes for cool down.

Shielded six circuit Socapex Cable Length

Length	Color Code
30’	White
60’	Green
100’	Blue

To avoid RF noise when using VL5Arc luminaires, a VARI*LITE shielded circuit Socapex cable must be used on the Smart Repeater unit.

APS6 Module Indicator Lights

Red	Short
Yellow	DCV 0-10V mode
Green	Lamp On

Caution: The lamp may remain lit after power to the Smart Repeater unit is turned off. Be sure to turn off APS6 modules.

Series 300 Lamp Cable Lengths

Shielded Lamp Cable (Black Jacket)	*Color Code*
6’	**WHITE**
12’	**RED**
20’	**YELLOW**
50’	**ORANGE**
100’	**BLUE**

**Shielded lamp runs should not exceed 300 ft (91.4 m).*

5.2.1 VL5Arc Channel Assignments

Mode 1 (8-bit)
1 Intensity
2 Pan
3 Tilt
4 Blue
5 Amber
6 Magenta
7 Diffusion
8 Reset

Mode 2 (Extended 8-bit)
1 Intensity
2 Pan
3 Tilt
4 Blue
5 Amber
6 Magenta
7 Diffusion
8 Focus Time
9 Color Time
10 Beam Time
11 Reset

Mode 3 (16-bit)
1 Intensity
2 Hi Byte of Pan
3 Lo Byte of Pan
4 Hi Byte of Tilt
5 Lo Byte of Tilt
6 Blue
7 Amber
8 Magenta
9 Diffusion
10 Reset

Mode 4 (Extended 16-bit)
1 Intensity
2 Hi Byte of Pan
3 Lo Byte of Pan
4 Hi Byte of Tilt
5 Lo Byte of Tilt
6 Blue
7 Amber
8 Magenta
9 Diffusion
10 Focus Time
11 Color Time
12 Beam Time
13 Reset

Mode 5 (16-bit)
1 Intensity
2 Hi Byte of Pan
3 Lo Byte of Pan
4 Hi Byte of Tilt
5 Lo Byte of Tilt
6 Blue
7 Amber
8 Magenta
9 Diffusion
10 Reset
11-14 Unused

Mode 6 (Extended 16-bit)
1 Intensity
2 Hi Byte of Pan
3 Lo Byte of Pan
4 Hi Byte of Tilt
5 Lo Byte of Tilt
6 Blue
7 Amber
8 Magenta
9 Diffusion
10 Focus Time
11 Color Time
12 Beam Time
13 Reset
14-17 Unused

****Mode 7 (16-bit)**
1 Intensity
2 Hi Byte of Pan
3 Lo Byte of Pan
4 Hi Byte of Tilt
5 Lo Byte of Tilt
6 Blue
7 Amber
8 Magenta
9 Diffusion
10 Reset
11-17 Unused

****Mode 8 (Extended 16-bit)**
1 Intensity
2 Hi Byte of Pan
3 Lo Byte of Pan
4 Hi Byte of Tilt
5 Lo Byte of Tilt
6 Blue
7 Amber
8 Magenta
9 Diffusion
10 Focus Time
11 Color Time
12 Beam Time
13 Reset
14-20 Unused

*****Mode 9 (16-bit)**
1 Intensity
2 Hi Byte of Pan
3 Lo Byte of Pan
4 Hi Byte of Tilt
5 Lo Byte of Tilt
6 Blue
7 Amber
8 Magenta
9 Diffusion
10 Reset
11-24 Unused

*****Mode 10 (Extended 16-bit)**
1 Intensity
2 Hi Byte of Pan
3 Lo Byte of Pan
4 Hi Byte of Tilt
5 Lo Byte of Tilt
6 Blue
7 Amber
8 Magenta
9 Diffusion
10 Focus Time
11 Color Time
12 Beam Time
13 Reset
14-27 Unused

**These modes are required if a VL7 spot luminaire is used on the same Smart Repeater Plus unit as the VL5Arc luminaires.

***These modes are required if a VL7B spot luminaire is used on the same Smart Repeater Plus unit as the VL5Arc luminaires.

When working in extended modes, the timing channels affect parameters as noted.

- **Focus -** pan, tilt
- **Color -** blue, amber, magenta
- **Beam -** diffusion

Reset Value - With a numerical key pad, set the reset channel to DMX 84 or 33%, hold for three seconds and set channel to zero. The luminaire will now recalibrate.

5.3 VL5 Family Color Reference

5.3.1 VL5 Colors - Gel Match to 0-100 Percentage & 0-255 Values

Color Name	Number	Similar To	*VL5 Wash DMX	*VL5Arc Wash DMX	*VL5B Wash DMX
Pink Tint	101	Lux 55		0/15/36 0/39-40/92-94	
Bastard Amber	103	Lux 02	0/13/43 0/34-35/110-112	0/43/33 0/110-112/85-86	0/36/29 0/92-94/74-76
GAM Bastard Amber	104	GAM 325	0/29/45 0/74-76/115-117	0/43/50 0/110-112/128-130	0/38/29 0/97-99/74-76
Warm Bastard Amber	105	Lee 162	29/25/0 74-76/64-66/0	0/41/47 0/105-107/120-122	0/26/25 0/67-68/64-66
Pale Golden Amber	107	Lux 09	0/30/43 0/77-79/110-112	0/43/50 0/110-112/128-130	0/41/29 0/105-107/74-76
Light Amber	110	Lux 16 Lee 204	0/41/49 0/105-107/125-127	0/45/50 0/115-117/128-130	0/45/32 0/115-117/82-84
Light Flame	112	Lux 17	0/38/53 0/97-99/136-137	0/45/55 0/115-117/141-142	0/44/35 0/113-114/90-91
Medium Bastard Amber	115	Lux 04	0/33/50 0/85-86/128-130	0/43/53 0/110-112/136-137	0/42/33 0/108-109/85-86
Dark Bastard Amber	116	Lux 03	0/33/51 0/85-86/131-132	0/42/52 0/108-109/133-135	0/42/34 0/108-109/87-89
Warm Amber	122	Lee 176 Lux 01	0/25/57 0/64-66/146-147	0/43/56 0/110-112/143-145	0/43/37 0/110-112/95-96
Peach	125	GAM 320	0/40/58 0/102-104/148-150	0/45/60 0/115-117/153-155	0/49/41 0/125-127/105-107
Flesh Pink	131	Lux 34	40/30/45 102-104/77-79/115-117	15/40/60 39-40/102-104/153-155	0/38/38 0/97-99/97-99
Dark Pink	134	Lee 111	0/29/63 0/74-76/161-163	0/43/65 0/110-112/166-168	0/42/45 0/108-109/115-117
Medium Salmon	136	Lux 32	0/43/65 0/110-112/166-168	0/43/63 0/110-112/161-163	0/52/48 0/133-135/123-124
Salmon	138	Lux 41	0/50/75 0/128-130/192-193	0/45/80 0/115-117/204-206	0/60/50 0/153-155/128-130
Brite Pink	141	Lee 128	0/42/90 0/108-109/230-232	0/45/90 0/115-117/230-232	
Dark Peach	145		0/39/73 0/100-101/187-188	0/50/100 0/128-130/255	
Lee Magenta	149	Lee 113	0/50/100 0/128-130/255	0/55/100 0/141-142/255	
Dark Salmon	151		0/46/100 0/118-119/255	0/50/100 0/128-130/255	
Deep Salmon	155		0/55/100 0/141-142/255	0/55/100 0/141-142/255	
Medium Red	164	Lux 27	50/100/100 128-130/255/255	50/100/100 128-130/255/255	0/100/62 0/255/159-160
Primary Red	168	Lee 106	40/100/100 102-104/255/255	0/100/100 0/255/255	0/100/54 0/255/138-140
Dark Orange	173	Lux 26	0/56/100 0/143-145/255	0/100/100 0/255/255	0/75/52 0/192-193/133-135
Light Red	177	GAM 235	0/50/100 0/128-130/255	25/55/100 64-66/141-142/255	
Dark Orange	181		0/100/90 0/255/230-232	0/100/90 0/255/230-232	0/100/54 0/255/138-140
Orange	183	Lux 19 Lee 164	0/100/75 0/255/192-193	0/100/80 0/255/204-206	0/100/50 0/255/128-130
Medium Amber	187	Lux 22	0/78/72 0/199-201/184-186	0/75/69 0/192-193/176-178	0/87/47 0/222-224/120-122
Deep Golden Amber	201	GAM 345	0/50/63 0/128-130/161-163	0/70/65 0/179-181/166-168	0/75/43 0/192-193/110-112
Canary	205	Lux 21	0/83/57 0/212-214/146-147	0/82/59 0/210-211/151-152	0/100/38 0/255/97-99
Light Amber	208		0/83/50 0/212-214/128-130	0/100/57 0/255/146-147	0/100/30 0/255/77-79

Note: **DMX Values - First row are 0-100% values, second row are 0-255 values. Shaded boxes mean the matches are close, but not exact. "Similar To" reflects the gel indicated used with a 3200˚K source. Due to the difference in color media and lamp source, color references are approximate and may vary by application.**

***The first value adjusts blue, the second adjusts amber and the third adjusts magenta.**

5.3.1 Cont. VL5 Colors - Gel Match to 0-100 Percentage & 0-255 Values

Color Name	Number	Similar To	*VL5 Wash DMX	*VL5Arc Wash DMX	*VL5B Wash DMX
Lee Orange	212	Lee 105	0/83/50 0/212-214/128-130	0/100/53 0/255/136-137	0/80/35 0/204-206/90-91
Chrome Orange	214	Lux 15 Lee 179	0/100/40 0/255/102-104	0/100/53 0/255/136-137	0/100/27 0/255/69-71
Bright Yellow	219		0/100/0 0/255/0	0/100/50 0/255/128-130	0/100/0 0/255/0
Dark Straw	221		0/75/40 0/192-193/102-104	0/100/35 0/255/90-91	0/85/20 0/217-219/51-53
Deep Amber	223	Lee 104	0/56/40 0/143-145/102-104	0/80/40 0/204-206/102-104	0/59/27 0/151-152/69-71
Light Yellow	225	Lee 101	0/58/0 0/148-150/0	0/65/41 0/166-168/105-107	0/58/0 0/148-150/0
Straw	237	Lux 12	0/53/5 0/136-137/13-15	0/56/41 0/143-145/105-107	0/53/0 0/136-137/0
Light Straw	239		0/43/0 0/110-112/0	0/43/40 0/110-112/102-104	0/42/0 0/108-109/0
No Color Green	245	Lee 213 with Lee 202		0/35/10 0/90-91/26-28	42/35/0 108-109/90-91/0
Pale Yellow-Green	251				0/55/65 0/141-142/166-168
Fern Green	254	Lee 122			60/60/0 153-155/153-155/0
Yellow-Green	256				70/100/0 179-181/255/0
Lime Green	257	Lee 139	100/72/0 255/184-186/0	100/85/0 255/217-219/0	0/80/100 0/204-206/255
Primary Green	259		100/64/0 255/164-165/0	100/64/0 255/164-165/0	0/84/100 0/215-216/255
Light Green	261		100/60/0 255/153-155/0	100/60/0 255/153-155/0	0/65/100 0/166-168/255
Moss Green	263		100/52/0 255/133-135/0	100/51/0 255/131-132/0	0/56/100 0/143-145/255
Light Blue-Green	267				90/35/0 230-232/90-91/0
Kelly Green	268	Lux 94			71/40/0 182-183/102-104/0
Dark Green	270	Lee 124		100/44/0 255/113-114/0	0/58/75 0/148-150/192-193
Fluorescent Green	273		100/50/0 255/128-130/0	100/45/0 255/115-117/0	0/50/80 0/128-130/204-206
Dark Fluor. Green	275		100/45/0 255/115-117/0	100/46/0 255/118-119/0	0/52/100 0/133-135/255
Blue-Grass Green	281	GAM 690 with GAM 440	87/44/0 222-224/113-114/0	100/44/0 255/113-114/0	0/50/75 0/128-130/192-193
Medium Blue-Green	284	Lee 116	100/39/0 255/100-101/0	100/43/0 255/110-112/0	0/20/100 0/51-53/255
Dark Peacock Green	286				0/49/75 0/125-127/192-193
Peacock Green	287	Lee 115			75/0/0 192-193/0/0
Dark Turquoise	289				65/30/0 166-168/77-79/0
Light Aqua	291		100/37/0 255/95-96/0	100/39/0 255/100-101/0	
Aqua	295		87/0/0 222-224/0/0	100/25/0 255/64-66/0	0/25/75 0/64-66/192-193
Rosco Peacock Blue	298	Lux 73			60/0/0 153-155/0/0
Lee Steel Blue	299	Lee 117			49/34/0 125-127/87-89/0

Note: **DMX Values - First row are 0-100% values, second row are 0-255 values. Shaded boxes mean the matches are close, but not exact. "Similar To" reflects the gel indicated used with a 3200˚K source. Due to the difference in color media and lamp source, color references are approximate and may vary by application.**

***The first value adjusts blue, the second adjusts amber and the third adjusts magenta.**

5.3.1 Cont. VL5 Colors - Gel Match to 0-100 Percentage & 0-255 Values

Color Name	Number	Similar To	*VL5 Wash DMX	*VL5Arc Wash DMX	*VL5B Wash DMX
1/4 CTB	301	Lee 203		0/38/35 0/97-99/90-91	37/25/0 95-96/64-66/0
1/2 CTB	303	Lee 202 Lux 61		10/25/35 26-28/64-66/90-91	36/0/0 92-94/0/0
Full CTB	307	Lee 201			47/0/0 120-122/0/0
City Blue	310	GAM 847 Polycolor 70			60/0/35 153-155/0/90-91
N.C. Blue	313	GAM 840 with GAM 980			63/0/40 161-163/0/102-104
Slate Blue	318	Lee 161			63/0/35 161-163/0/90-91
Pale Blue	321	Lux 69			
Lee Light Blue	325	Lee 118	85/20/0 217-219/51-53/0	90/30/0 230-232/77-79/0	29/0/72 74-76/0/184-186
Bright Blue	330	Lee 141	78/0/0 199-201/0/0	100/0/0 255/0/0	50/0/65 128-130/0/166-168
Medium Blue	342	Lee 132	65/0/0 166-168/0/0	65/0/0 166-168/0/0	
Sea Blue	345	Lux 68 GAM 810		100/0/45 255/0/115-117	60/0/60 153-155/0/153-155
Icy Blue	350	Lux 68	100/0/55 255/0/141-142	100/0/50 255/0/128-130	100/0/52 255/0/133-135
Just Blue	355	Lee 79	69/0/50 176-178/0/128-130	70/0/50 179-181/0/128-130	
Primary Blue	359	Lux 83 GAM 850	73/0/56 187-188/0/143-145	70/0/52 179-181/0/133-135	
Deep Blue	371		100/0/100 255/0/255	100/0/100 255/0/255	
Dark Blue	374	Lee 120	85/0/100 217-219/0/255	100/0/80 255/0/204-206	
Royal Blue	380	GAM 905	100/0/75 255/0/192-193	67/0/89 171-173/0/227-229	
Indigo	403	Lux 59	62/0/100 159-160/0/255	55/0/55 141-142/0/141-142	
Congo Blue	406	Lee 181	63/0/100 161-163/0/255	57/0/60 146-147/0/153-155	
Darkest Lavender	409		62/0/100 159-160/0/255	52/0/70 133-135/0/179-181	
Dark Rose Purple	411		70/0/60 179-181/0/153-155	60/0/55 153-155/0/141-142	
Deep Lavender	415		70/0/60 179-181/0/153-155	55/0/40 141-142/0/102-104	
Lilac	418		66/0/56 169-170/0/143-145	57/0/45 1461-47/0/115-117	
Special Dark Lavender	421		75/0/57 192-193/0/146-147	55/0/37 141-142/0/95-96	
Cool Lavender	422	GAM 845	72/0/55 184-186/0/141-142	55/0/30 141-142/0/77-79	
Pale Lavender	425				
Mercury Vapor	429			53/0/33 136-137/0/85-86	
Medium Violet	433	Lux 359	61/0/43 155-156/0/110-112	52/0/37 133-135/0/95-96	
Dark Lavender	443	Lee 180	53/0/22 136-137/0/57-58	47/0/36 120-121/0/92-94	
Lee Special Lavender	447	Lee 137		30/0/0 77-79/0/0	

Note: **DMX Values - First row are 0-100% values, second row are 0-255 values. Shaded boxes mean the matches are close, but not exact. "Similar To" reflects the gel indicated used with a 3200˚K source. Due to the difference in color media and lamp source, color references are approximate and may vary by application.**

***The first value adjusts blue, the second adjusts amber and the third adjusts magenta.**

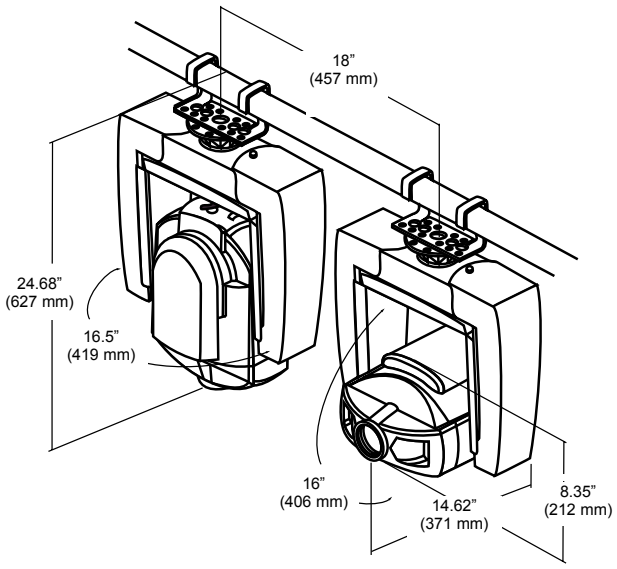
5.3.1 Cont. VL5 Colors - Gel Match to 0-100 Percentage & 0-255 Values

Color Name	Number	Similar To	*VL5 Wash DMX	*VL5Arc Wash DMX	*VL5B Wash DMX
Twilight	451	GAM 915			60/0/35 153-155/0/90-91
Deep Lavender	455	GAM 948	56/0/40 143-145/0/102-104	48/0/35 123-124/0/90-91	50/0/52 128-130/0/133-135
Pale Lilac	461		55/0/30 141-142/0/77-79	42/0/45 108-109/0/115-117	40/0/50 102-104/0/128-130
Periwinkle	463	GAM 960 with GAM 970	51/0/0 131-132/0/0	44/0/40 113-114/0/102-104	47/0/47 120-122/0/120-122
Dusty Lavender	466			30/0/0 77-79/0/0	50/0/34 128-130/0/87-89
No Color Lilac	468	Lux 52		28/0/48 72-73/0/123-124	38/0/30 97-99/0/77-79
Special Lavender	469	Lux 54		22/0/41 57-58/0/105-107	39/0/28 100-101/0/72-73
Dark Rose	471		59/0/63 151-152/0/161-163	45/0/70 115-117/0/179-181	
Dark Fushia	474	Lux 358 with Lux 60	56/0/65 143-145/0/166-168	47/0/70 120-122/0/179-181	
Dark Follies Pink	476		50/0/68 128-130/0/174-175	36/0/68 92-94/0/174-175	
Magenta	478	Lee 126	51/0/78 131-132/0/199-201		
Hot Pink	480		42/0/100 108-109/0/255		
Mauve	483		42/0/70 108-109/0/179-181		
Follies Pink	489		0/0/77 0/0/197-198		
Flesh Pink	491		45/0/45 115-117/0/115-117	0/32/65 0/82-84/166-168	0/0/46 0/0/118-119
Rose Purple	492	Lux 48 with Lux 60		32/40/65 82-84/102-104/166-168	0/29/47 0/74-76/120-122
Carnation	494			0/0/53 0/0/136-137	0/0/40 0/0/102-104
No Color Pink	495		42/0/38 108-109/0/97-99	0/35/58 0/90-91/148-150	0/0/38 0/0/97-99
Cool Bastard Amber	496	Lux 52 with Lux 33			35/0/39 90-91/0/100-101
Dusty Rose	497			0/35/53 0/90-91/136-137	0/20/35 0/51-53/90-91
Rouge	498		35/0/40 90-91/0/102-104	10/37/53 26-28/95-96/136-137	0/22/35 0/57-58/90-91

Note: **DMX Values - First row are 0-100% values, second row are 0-255 values. Shaded boxes mean the matches are close, but not exact. "Similar To" reflects the gel indicated used with a 3200˚K source. Due to the difference in color media and lamp source, color references are approximate and may vary by application.**

***The first value adjusts blue, the second adjusts amber and the third adjusts magenta.**

5.4 VL6 Spot Luminaire



Weight: 22 lbs (10 kg), Series 300 molded plastic six luminaire case - 144 lbs (65 kg).

Dimensions: 16.5 x 24.68 x 16 in. (419 x 627 x 406 mm) with hook.

Required Clearance: 18 x 18 x 24.68 in. (457 x 457 x 627 mm) with hook.

Operating Temperature: Heat Sink 250°F (121°C)
Allow minimum of ten minutes for cool down with lamp off and fan on.

Lens Options: Standard is NFOV, MFOV or WFOV is optional.

Shielded six circuit Socapex Cable Length

Length	Color Code
30’	White
60’	Green
100’	Blue

To avoid RF noise when using VL6 luminaires, a VARI✻LITE shielded six circuit Socapex cable must be used on the Smart Repeater unit.

APS6 Module Indicator Lights

Red	Short
Yellow	DCV 0-10V mode
Green	Lamp On

Series 300 Lamp Cable Lengths

Shielded Lamp Cable (Black Jacket)	*Color Code*
6’	**WHITE**
12’	**RED**
20’	**YELLOW**
50’	**ORANGE**
100’	**BLUE**

**Shielded lamp runs should not exceed 300 ft (91.4 m).*

Note: The VL6 lamp should burn three minutes before dousing.

5.4.1 VL6 Channel Assignments

Mode 1 (8-bit)	Mode 2 (Extended 8-bit)	Mode 3 (16-bit)	Mode 4 (Extended 16-bit)	Mode 5 (16-bit)
1 Intensity	1 Intensity	1 Intensity	1 Intensity	1 Intensity
2 Pan	2 Pan	2 Hi Byte of Pan	2 Hi Byte of Pan	2 Hi Byte of Pan
3 Tilt	3 Tilt	3 Lo Byte of Pan	3 Lo Byte of Pan	3 Lo Byte of Pan
4 Wheel 1	4 Wheel 1	4 Hi Byte of Tilt	4 Hi Byte of Tilt	4 Hi Byte of Tilt
5 Wheel 2	5 Wheel 2	5 Lo Byte of Tilt	5 Lo Byte of Tilt	5 Lo Byte of Tilt
6 Beam Iris	6 Beam Iris	6 Wheel 1	6 Wheel 1	6 Wheel 1
7 Edge (Lens)	7 Edge (Lens)	7 Wheel 2	7 Wheel 2	7 Wheel 2
8 Reset	8 Focus Time	8 Beam Iris	8 Beam Iris	8 Beam Iris
	9 Color Time	9 Edge (Lens)	9 Edge (Lens)	9 Edge (Lens)
	10 Beam Time	10 Reset	10 Focus Time	10 Strobe
	11 Reset		11 Color Time	11 Reset
			12 Beam Time	12-14 Unused
			13 Reset	

Mode 6 (Extended 16-bit)	**Mode 7 (16-bit)	**Mode 8 (Extended 16-bit)	***Mode 9 (16-bit)	***Mode 10 (Extended 16-bit)
1 Intensity	1 Intensity	1 Intensity	1 Intensity	1 Intensity
2 Hi Byte of Pan	2 Hi Byte of Pan	2 Hi Byte of Pan	2 Hi Byte of Pan	2 Hi Byte of Pan
3 Lo Byte of Pan	3 Lo Byte of Pan	3 Lo Byte of Pan	3 Lo Byte of Pan	3 Lo Byte of Pan
4 Hi Byte of Tilt	4 Hi Byte of Tilt	4 Hi Byte of Tilt	4 Hi Byte of Tilt	4 Hi Byte of Tilt
5 Lo Byte of Tilt	5 Lo Byte of Tilt	5 Lo Byte of Tilt	5 Lo Byte of Tilt	5 Lo Byte of Tilt
6 Wheel 1	6 Wheel 1	6 Wheel 1	6 Wheel 1	6 Wheel 1
7 Wheel 2	7 Wheel 2	7 Wheel 2	7 Wheel 2	7 Wheel 2
8 Beam Iris	8 Beam Iris	8 Beam Iris	8 Beam Iris	8 Beam Iris
9 Edge (Lens)	9 Edge (Lens)	9 Edge (Lens)	9 Edge (Lens)	9 Edge (Lens)
10 Strobe	10 Strobe	10 Strobe	10 Strobe	10 Strobe
11 Focus Time	11 Reset	11 Focus Time	11 Reset	11 Focus Time
12 Color Time	12-17 Unused	12 Color Time	12-24 Unused	12 Color Time
13 Beam Time		13 Beam Time		13 Beam Time
14 Reset		14 Reset		14 Reset
15-17 Unused		15-20 Unused		15-27 Unused

**These modes are required if a VL7 spot luminaire is used on the same Smart Repeater Plus unit as the VL6 luminaires.

***These modes are required if a VL7B spot luminaire is used on the same Smart Repeater Plus unit as the VL6 luminaires.

When working in extended modes, the timing channels affect parameters as noted.

- **Focus -** pan, tilt
- **Color -** color wheel (wheel 2)
- **Beam -** beam iris, edge, gobo (wheel 1)

Reset Value - With a numerical key pad, set the reset channel to DMX 84 or 33%, hold for three seconds and set channel to zero. The luminaire will now recalibrate.

5.4.2 Strobe Values

0 - 2	Open	11 - 12	Fast Random
3 - 5	Closed	13 - 255	Where 13 is greatest
6 - 7	Slow Random		interval and 255 is least
8-10	Medium Random		interval (fastest) strobe.

5.4.3 Operating VL6 Wheels

VL6 spot luminaire color/gobo wheels have 12 positions and are normally loaded with 11 color filters or gobos, leaving one position for open white. You can mix filters and gobos on the same wheel, or have all filters on one wheel with all gobos on the other wheel. Please advise an Account Manager if you wish to do this. The VL6 spot luminaires are supplied in standard configuration with all gobos on the front wheel (Wheel 1) and all filters on the rear wheel (Wheel 2).

Color and gobo wheels in VL6 luminaires can be placed on any step position of the motor. Wheel positions are mapped to DMX fader positions to control 96 static positions and five spin speeds. Percent values of 0 to 95 control static positions; values 96 through 100 control spin speeds.

5.4.4 VL6 Standard Wheel Position

Standard Colors (Wheel 2)		**Standard Gobos (Wheel 1)**	
0	Open	0	Open
1	0020 Magenta	1	7002 Pebbles
2	0150 Cool Pink	2	7001 Globular Breakup
3	0240 Light Red	3	6001 Medium Circle
4	0320 Flesh Pink	4	5011 Night Sky
5	0440 Orange	5	5501 Leaves
6	0540 Yellow	6	4202 Vertical Bars
7	0660 Green	7	4201 Horizontal Bars
8	0820 Light Blue Green	8	7015 Block Breakup
9	0850 Dark Blue	9	7008 Waves
10	0960 Deep Lavender	10	4009 Simulated Triangle
11	0990 Congo Blue	11	6006 Circle of Holes #3

5.4.5 DMX Map for VL6 Color/Gobo Wheels

VL6 WHEEL STEP/POSITION		DMX (0-255)	DMX (0-100%)	VL6 WHEEL STEP/POSITION		DMX (0-255)	DMX (0-100%)
0	0	0-2	0	46		128-130	50
95		3-5	1	45		131-132	51
94		6-7	2	44	6 1/2	133-135	52
93		8-10	3	33		136-137	53
92	1/2	11-12	4	42		138-140	54
91		13-15	5	41		141-142	55
90		16-17	6	40	7	143-145	56
89		18-20	7	39		146-147	57
88	1	21-22	8	38		148-150	58
87		23-25	9	37		151-152	59
86		26-28	10	36	7 1/2	153-155	60
85		29-30	11	35		156-158	61
84	1 1/2	31-33	12	34		159-160	62
83		34-35	13	33		161-163	63
82		36-38	14	32	8	164-165	64
81		39-40	15	31		166-168	65
80	2	41-43	16	30		169-170	66
79		44-45	17	29		171-173	67
78		46-48	18	28	8 1/2	174-175	68
77		49-50	19	27		176-178	69
76	2 1/2	51-53	20	26		179-181	70
75		54-56	21	25		182-183	71
74		57-58	22	24	9	184-186	72
73		59-61	23	23		187-188	73
72	3	62-63	24	22		189-191	74
71		64-66	25	21		192-193	75
70		67-68	26	20	9 1/2	194-196	76
69		69-71	27	19		197-198	77
68	3 1/2	72-73	28	18		199-201	78
67		74-76	29	17		202-203	79
66		77-79	30	16	10	204-206	80
65		80-81	31	15		207-209	81
64	4	82-84	32	14		210-211	82
63		85-86	33	13		212-214	83
62		87-89	34	12	10 1/2	215-216	84
61		90-91	35	11		217-219	85
60	4 1/2	92-94	36	10		220-221	86
59		95-96	37	9		222-224	87
58		97-99	38	8	11	225-226	88
57		100-101	39	7		227-229	89
56	5	102-104	40	6		230-231	90
55		105-107	41	5		232-234	91
54		108-109	42	4	11 1/2	235-236	92
53		110-112	43	3		237-239	93
52	5 1/2	113-114	44	2		240-242	94
51		115-117	45	1		243-244	95
50		118-119	46	SPIN 1		245-247	96
49		120-122	47	SPIN 2		248-249	97
48	6	123-124	48	SPIN 3		250-252	98
47		125-127	49	SPIN 4		253-254	99
				SPIN 5		255	100

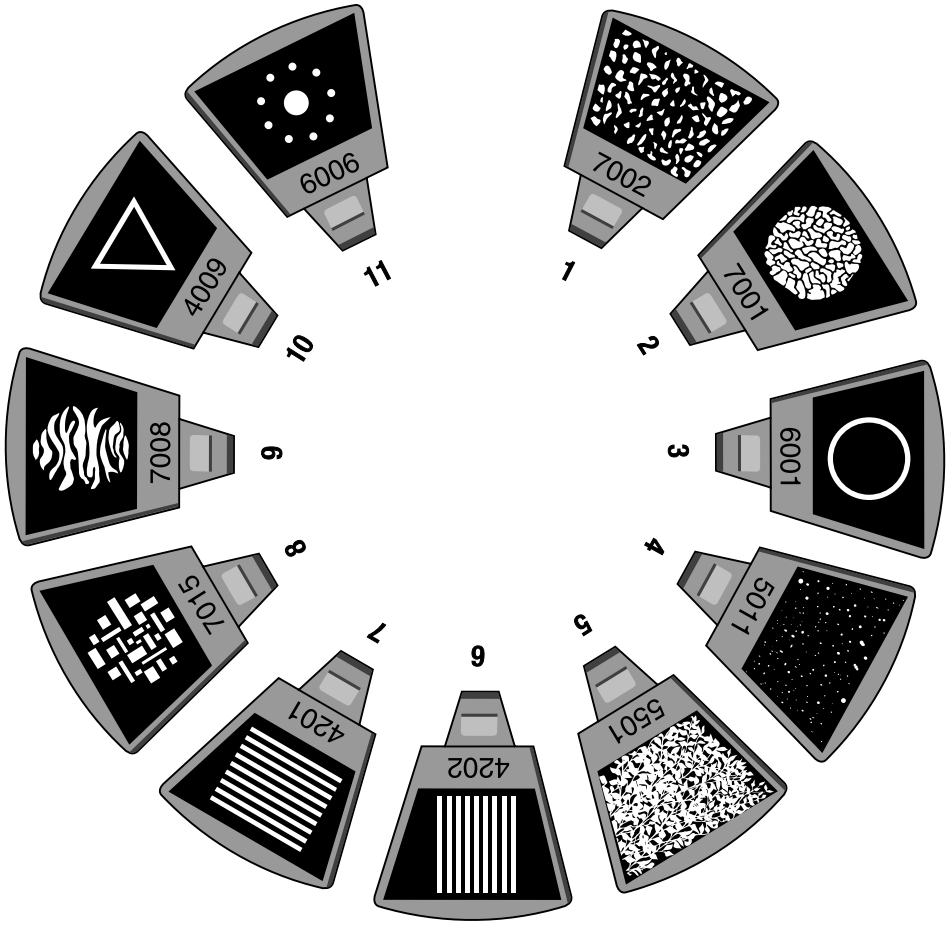
5.4.6 VL6 Standard Color Cross-Reference Palette

STANDARD SET		SIMILAR T0*
0020	Magenta	GAM 995 with GAM 155
0150	Cool Pink	GAM 960 with GAM 970
0240	Light Red	GAM 235
0320	Flesh Pink	Lux 52 with Lux 33
0440	Orange	Lux 19 or Lee 164
0540	Yellow	Lee 101 with Lee 138
0660	Green	Lee 139
0820	Light Blue Green	Lux 69
0850	Dark Blue	Lee 120
0960	Deep Lavender	GAM 948
0990	Congo Blue	Lee 181

RENTAL ACCESS		SIMILAR T0*
0080	Cherry	Lux 48
0335	Middle Rose	Lee 110
0350	No Color Lavender	Lux 55
0360	Warm Bastard Amber	GAM 363
0370	Pale Lime	GAM 515 with GAM 820
0390	Color Correction	3200°K 0 Green
0410	Deep Straw	Lux 15 or Lee 179
0430	Deep Golden Amber	GAM 345
0680	Blue-Grass	GAM 690 with GAM 470
0735	Peacock Green	Lee 115
0805	Sea Blue	GAM 810 or Lux 68
0810	Daylight Blue	Lee 201
0830	Pale Blue	Polycolor 70 or Lee 200
0840	Light Steel Blue	GAM 840 with GAM 980
0845	Slate Blue	Lux 78 with Lux 64
0865	Night Sky Blue	Lux 83 or GAM 850
0870	Bright Blue	Lux 79
0880	Dark Blue	GAM 905
0930	Special Lavender	GAM 882 with GAM 980
0970	Violet	Lux 359 with Lux 51
0980	Dark Lavender	Lee 180
0983	Purple	GAM 950
0985	Dark Fushia	Lux 358 with Lux 60

* Matched to an ellipsoidal reflector spotlight with a 3200°K incandescent source.

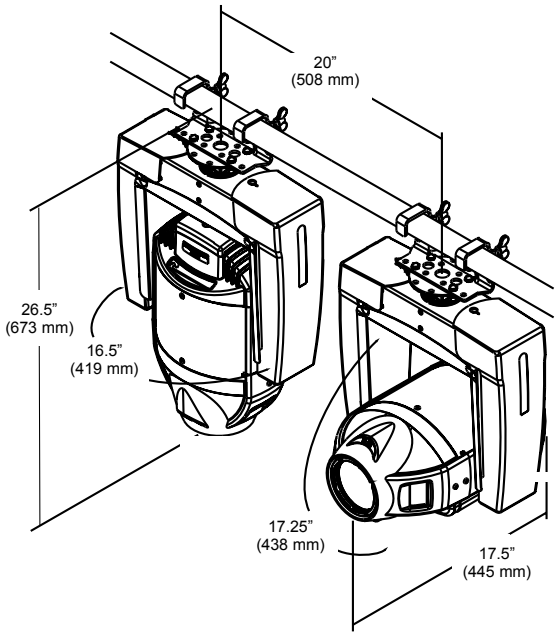
5.4.7 VL6 Standard Gobo Palette in order of wheel placement.



0	Open	6	4202 Vertical Bars
1	7002 Pebbles	7	4201 Horizontal Bars
2	7001 Globular Breakup	8	7015 Block Breakup
3	6001 Medium Circle	9	7008 Waves
4	5011 Night Sky	10	4009 Medium Triangle
5	5501 Leaves	11	6006 Circle of Holes #3

See VARI*IMAGE™ catalog for rental access gobos.

5.5 VL6B Spot Luminaire



Weight: 29 lbs (13.2 kg), VL6B molded plastic six luminaire case - 144 lbs (65 kg).

Dimensions: 16.5 x 26.5 x 17.25 in. (419 x 673 x 438 mm) with hook.

Required Clearance: 20 x 20 x 26.5 in. (508 x 508 x 673 mm) with hook.

Operating Temperature: Heat Sink 250°F (121°C)
Allow minimum of ten minutes for cool down with lamp off and fan on.

Shielded six circuit Socapex Cable Length

Length	Color Code
30’	White
60’	Green
100’	Blue

To avoid RF noise when using VL6B luminaires, a VARI✻LITE shielded six circuit Socapex cable must be used on the Smart Repeater unit.

APS6 Module Indicator Lights

Red	Short
Yellow	DCV 0-10V mode
Green	Lamp On

Series 300 Lamp Cable Lengths

Shielded Lamp Cable (Black Jacket)	*Color Code*	*Smart Lamp Plus Cable*	*Color Code*
6’	WHITE	50’	ORANGE
12’	RED	100’	BLUE
20’	YELLOW		
50’	ORANGE		
100’	BLUE		

**Shielded lamp cable can be used on runs 32 feet or shorter. Smart Lamp Plus cable should be used on runs 32 feet or longer.*

Note: The VL6B lamp should burn three minutes before dousing.

Please note that you can run a maximum of three VL6B luminaires on a Smart Repeater and six VL6B luminaires on a Smart Repeater Plus unit. Refer to Section 3.3 Smart Repeater Unit

5.5.1 VL6B Channel Assignments

Mode 5 (16-bit)	Mode 6 (Extended 16-bit)	Mode 7 (16-bit)
1 Intensity	1 Intensity	1 Intensity
2 Hi Byte of Pan	2 Hi Byte of Pan	2 Hi Byte of Pan
3 Lo Byte of Pan	3 Lo Byte of Pan	3 Lo Byte of Pan
4 Hi Byte of Tilt	4 Hi Byte of Tilt	4 Hi Byte of Tilt
5 Lo Byte of Tilt	5 Lo Byte of Tilt	5 Lo Byte of Tilt
6 Wheel 1	6 Wheel 1	6 Wheel 1
7 Wheel 2	7 Wheel 2	7 Wheel 2
8 Beam Iris	8 Beam Iris	8 Beam Iris
9 Edge (Lens)	9 Edge (Lens)	9 Edge (Lens)
10 Strobe	10 Strobe	10 Strobe
11 Zoom (Lens)	11 Zoom (Lens)	11 Zoom (Lens)
12 Rotating Wheel	12 Rotating Wheel	12 Rotating Wheel
13 Rotation/Index	13 Rotation/Index	13 Rotation/Index
14 Reset	14 Focus Time	14 Reset
	15 Color Time	15-17 Unused
	16 Beam Time	
	17 Reset	

**Mode 8 (Extended 16-bit)	***Mode 9 (16-bit)	***Mode 10 (Extended 16-bit)
1 Intensity	1 Intensity	1 Intensity
2 Hi Byte of Pan	2 Hi Byte of Pan	2 Hi Byte of Pan
3 Lo Byte of Pan	3 Lo Byte of Pan	3 Lo Byte of Pan
4 Hi Byte of Tilt	4 Hi Byte of Tilt	4 Hi Byte of Tilt
5 Lo Byte of Tilt	5 Lo Byte of Tilt	5 Lo Byte of Tilt
6 Wheel 1	6 Wheel 1	6 Wheel 1
7 Wheel 2	7 Wheel 2	7 Wheel 2
8 Beam Iris	8 Beam Iris	8 Beam Iris
9 Edge (Lens)	9 Edge (Lens)	9 Edge (Lens)
10 Strobe	10 Strobe	10 Strobe
11 Zoom (Lens)	11 Zoom (Lens)	11 Zoom (Lens)
12 Rotating Wheel	12 Rotating Wheel	12 Rotating Wheel
13 Rotation/Index	13 Rotation/Index	13 Rotation/Index
14 Focus Time	14 Reset	14 Focus Time
15 Color Time	15-24 Unused	15 Color Time
16 Beam Time		16 Beam Time
17 Reset		17 Reset
18-20 Unused		18 -27 Unused

**These modes are required if a VL7 spot luminaire is used on the same Smart Repeater Plus unit as the VL6B luminaires.

***These modes are required if a VL7B spot luminaire is used on the same Smart Repeater Plus unit as the VL6B luminaires.

When working in extended modes, the timing channels affect parameters as noted.

- **Focus -** pan, tilt
- **Color -** color wheel (wheel 2)
- **Beam -** beam iris, edge, zoom, rotation/index, rotating gobo, gobo wheel (wheel 1)

Reset Value - With a numerical key pad, set the reset channel to DMX 84 or 33%, hold for three seconds and set channel to zero. The luminaire will now recalibrate.

5.5.2 Strobe Values

0 - 2	Open	11 - 12	Fast Random
3 - 5	Closed	13 - 255	Where 13 is greatest
6 - 7	Slow Random		interval and 255 is least
8-10	Medium Random		interval (fastest) strobe.

5.5.3 Operating VL6B Wheels

VL6B spot luminaire fixed color and gobo wheels have 12 positions, while the rotating gobo wheel has six positions. You can mix color filters and gobos on the same wheel, or have all filters on one wheel with all gobos on the other wheel. The VL6B spot luminaires are supplied in standard configuration with all gobos on the front wheel (Wheel 1) and all filters on the rear wheel (Wheel 2).

Color and gobo wheels in VL6 luminaires can be placed on any step position of the motor. Wheel positions are mapped to DMX fader positions to control 96 static positions and five spin speeds. Percent values of 0 to 95 control static positions; values 96 through 100 control spin speeds.

5.5.4 VL6B Standard Wheel Position

Standard Colors (Wheel 2)

0	Open
1	0240 Light Red
2	0850 Dark Blue
3	0540 Yellow
4	0820 Light Blue Green
5	0150 Cool Pink
6	0660 Green
7	0020 Magenta
8	0960 Deep Lavender
9	0320 Flesh Pink
10	0440 Orange
11	0990 Congo Blue

Standard Gobos (Wheel 1)

0	Open
1	7002 Pebbles
2	7025 Dust Breakup
3	6001 Medium Circle
4	5011 Night Sky
5	5501 Leaves
6	4202 Vertical Bars
7	7008 Waves
8	7015 Block Breakup
9	7523 Tribal Breakup
10	5009 Liquid Texture
11	7029 Alpha Rays

Rotating Gobo Wheel

0	Open
1	8005 5 Facet Prism
2	6011 Circle of Ovals
3	4316 Hypno Spiral
4	4212 Spiral Stones
5	7015 Pinwheel

5.5.5 DMX Map for VL6B Color/Gobo Wheels

The VL6B fixed wheel is the same as the VL6 fixed wheel. Please refer to **Section 5.4.5 DMX Map for VL6 Color/Gobo Wheels**.

5.5.6 Control of the VL6B Rotating Gobo Wheel

The channel assigned to the rotating wheel selects the required gobo as follows.

DMX VALUES	PERCENT VALUES	ACTION	DMX VALUES	PERCENT VALUES	ACTION
156-255		OPEN	53-76	25	GOBO 2
129-153	55	GOBO 5	27-52	15	GOBO 1
103-128	45	GOBO 4	0-26	5	OPEN
77-102	35	GOBO 3			

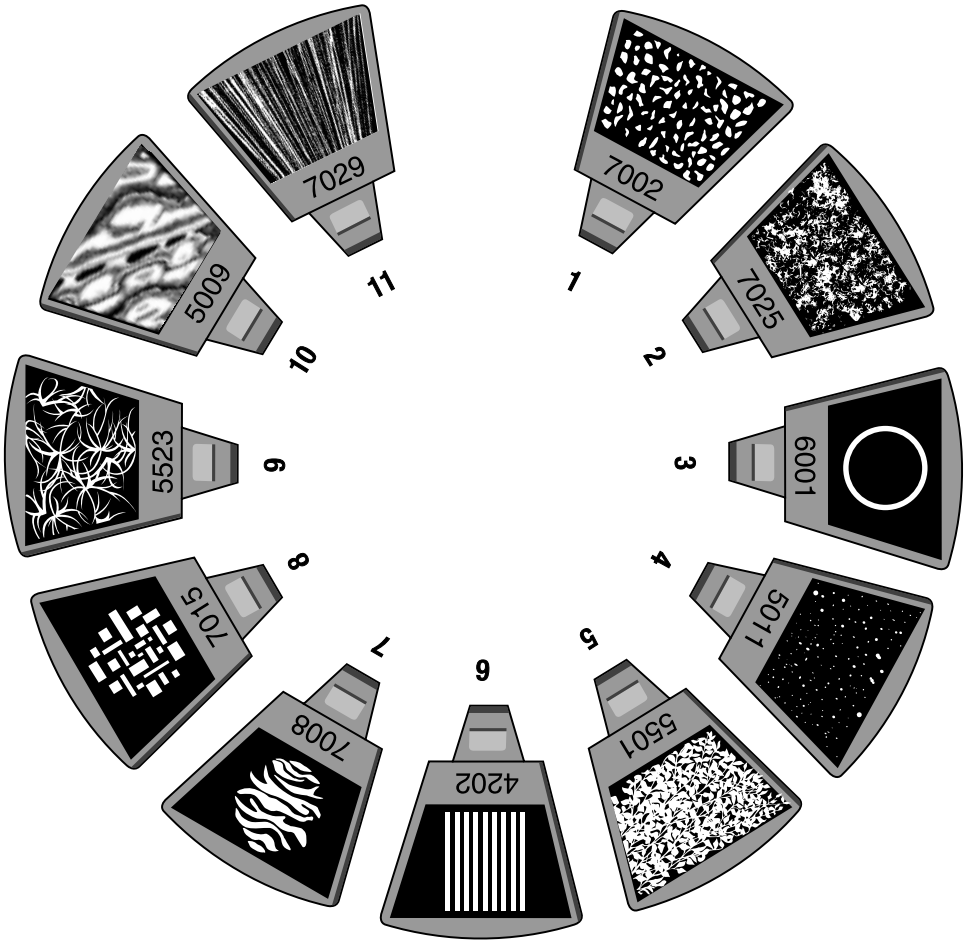
The channel assigned to the rotation/index controls the gobo position as follows.

DMX VALUES	PERCENT VALUES	ACTION	DMX VALUES	PERCENT VALUES	ACTION
255	100	FAST CCW	229		STOP
254		22	228		SLOW CW
253		21	227	89	1
252	99	20	226		2
251		19	225		3
250	98	18	224	88	4
249		17	223		5
248		16	222	87	6
247	97	15	221		7
246		14	220		8
245	96	13	219	86	9
244		12	218		10
243		11	217	85	11
242	95	10	216		12
241		9	215		13
240	94	8	214	84	14
239		7	213		15
238		6	212	83	16
237	93	5	211		17
236		4	210		18
235	92	3	209	82	19
234		2	208		20
233		1	207	81	21
232	91	SLOW CCW	206		22
231		STOP	205	80	FAST CW
230	90	STOP	201-0	79-0	INDEX POS.

5.5.7 VL6B Standard Color Cross-Reference Palette

The VL6B standard color cross-reference palette is the same as the VL6 palette. Please refer to **Section 5.4.6 VL6 Standard Gobo Color Cross-Reference**.

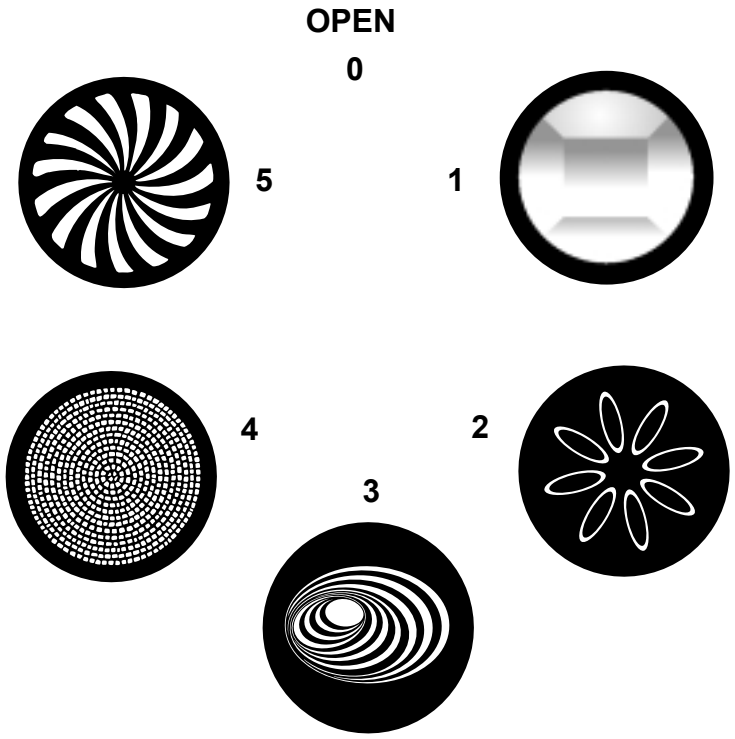
5.5.8 VL6B Standard Gobo Palette in order of wheel placement.



0	Open	6	4202 Vertical Bars
1	7002 Pebbles	7	7008 Waves
2	7025 Dust Breakup	8	7015 Block Breakup
3	6001 Medium Circle	9	5523 Tribal Breakup
4	5011 Night Sky	10	5009 Liquid Texture
5	5501 Leaves	11	7029 Alpha Rays

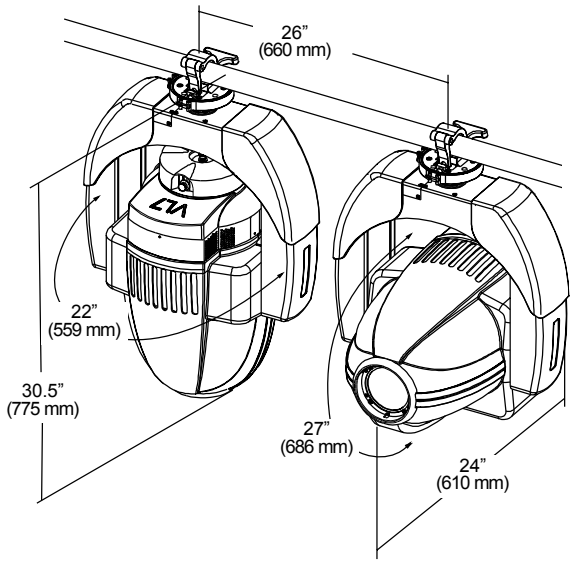
See VARI*IMAGE™ catalog for rental access gobos.

5.5.9 VL6B Standard Rotating Gobo Palette in order of wheel placement.



0	Open	3	4316 Hypno Spiral
1	8005 5 Facet Prism	4	4212 Spiral Stones
2	6011 Circle of Ovals	5	7015 Pinwheel

5.6 VL7 Spot Luminaire



Weight: 68 lbs (30.8 kg) without hook or floor stand, VL7 molded plastic two luminaire case - 155 lbs (65 kg).

Dimensions: 22 x 30.5 x 27 in. (559 x 775 x 686 mm) with hook.

Required Clearance: 26 x 26 x 30.5 in. (660 x 660 x 775 mm) with hook.

Operating Temperature: Heat Sink 250°F (121°C) Allow maximum of five minutes for cool down.

Shielded six circuit Socapex Cable Length

Length	Color Code
30’	White
60’	Green
100’	Blue

To avoid RF noise when using VL7 luminaires, a VARI✻LITE shielded six circuit Socapex cable must be used on the Smart Repeater unit.

APS6 Module Indicator Lights

Red	Short
Yellow	DCV 0-10V mode
Green	Lamp On

Series 300 Lamp Cable Lengths

Shielded Lamp Cable (Black Jacket)	*Color Code*	*Smart Lamp Plus Cable*	*Color Code*
6’ **12’** **20’**	**WHITE** **RED** **YELLOW**	**50’** **100’**	**ORANGE** **BLUE**

**Shielded lamp cable can be used on runs 32 feet or shorter. Smart Lamp Plus cable should be used on runs 32 feet or longer.*

Note: The VL7 lamp should burn three minutes before dousing.

5.6.1 VL7 Channel Assignments

Mode 7 (16-bit)	Mode 8 (Extended 16-bit)	***Mode 9 (16-bit)	***Mode 10 (Extended 16-bit)
1 Intensity	1 Intensity	1 Intensity	1 Intensity
2 Hi Byte of Pan	2 Hi Byte of Pan	2 Hi Byte of Pan	2 Hi Byte of Pan
3 Lo Byte of Pan	3 Lo Byte of Pan	3 Lo Byte of Pan	3 Lo Byte of Pan
4 Hi Byte of Tilt	4 Hi Byte of Tilt	4 Hi Byte of Tilt	4 Hi Byte of Tilt
5 Lo Byte of Tilt	5 Lo Byte of Tilt	5 Lo Byte of Tilt	5 Lo Byte of Tilt
6 Plate 1 Color	6 Plate 1 Color	6 Plate 1 Color	6 Plate 1 Color
7 Plate 1 Saturation	7 Plate 1 Saturation	7 Plate 1 Saturation	7 Plate 1 Saturation
8 Plate 2 Color	8 Plate 2 Color	8 Plate 2 Color	8 Plate 2 Color
9 Plate 2 Saturation	9 Plate 2 Saturation	9 Plate 2 Saturation	9 Plate 2 Saturation
10 Beam Iris	10 Beam Iris	10 Beam Iris	10 Beam Iris
11 Edge (Lens)	11 Edge (Lens)	11 Edge (Lens)	11 Edge (Lens)
12 Zoom (Lens)	12 Zoom (Lens)	12 Zoom (Lens)	12 Zoom (Lens)
13 Strobe	13 Strobe	13 Strobe	13 Strobe
14 Fixed Wheel	14 Fixed Wheel	14 Fixed Wheel	14 Fixed Wheel
15 Rotating Wheel	15 Rotating Wheel	15 Rotating Wheel	15 Rotating Wheel
16 Rotation/Index	16 Rotation/Index	16 Rotation/Index	16 Rotation/Index
17 Reset	17 Focus Time	17 Reset	17 Focus Time
	18 Color Time	18-24 Unused	18 Color Time
	19 Beam Time		19 Beam Time
	20 Reset		20 Reset
			21-27 Unused

***These modes are required if a VL7B spot luminaire is used on the same Smart Repeater Plus unit as the VL7 luminaires.

When working in extended modes, the timing channels affect parameters as noted.

- **Focus** - pan, tilt
- **Color** - color mechanism
- **Beam** - beam size, lens, zoom, fixed and rotating gobos, and index positions

Reset Value - With a numerical key pad, set the reset channel to DMX 84 or 33%, hold for three seconds and set channel to zero. The luminaire will now recalibrate.

5.6.2 Strobe Values

0 - 2	Open	11 - 12	Fast Random
3 - 5	Closed	13 - 255	Where 13 is greatest
6 - 7	Slow Random		interval and 255 is least
8-10	Medium Random		interval (fastest) strobe.

5.6.3 VL7 Standard Wheel Position

Static Gobo Wheel

0	Open
1	7002 Pebbles
2	7025 Dust Breakup
3	6001 Medium Circle
4	5011 Night Sky
5	5501 Leaves
6	4202 Vertical Bars
7	4212 New Horizon
8	7015 Block Breakup
9	5523 Tribal Breakup
10	6501 Geometric Shapes
11	7029 Alpha Rays

Rotating Gobo Wheel

0	Open
1	8005 5 Facet Prism
2	6011 Circle of Ovals
3	4316 Hypno Spiral
4	4212 Spiral Stones
5	7015 Pinwheel

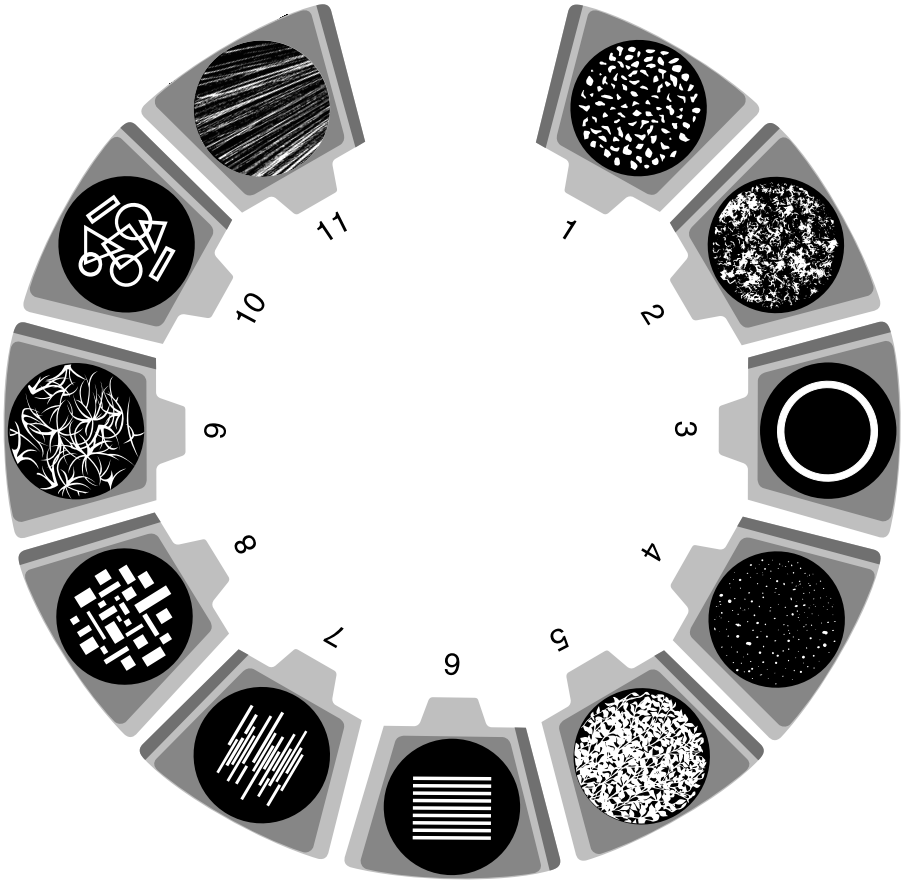
5.6.4 DMX Map for VL7 Color/Gobo Wheels

The control of the VL7 fixed wheel is the same as the VL6 fixed wheel. Please refer to **Section 5.4.5 DMX Map for VL6 Color/Gobo Wheels.**

5.6.5 Control of the VL7 Rotating Gobo Wheel

The control of the VL7 rotating gobo wheel is the same as the VL6B rotating gobo wheel. Please refer to **Section 5.5.6 Control of VL6B Rotating Gobo Wheel**.

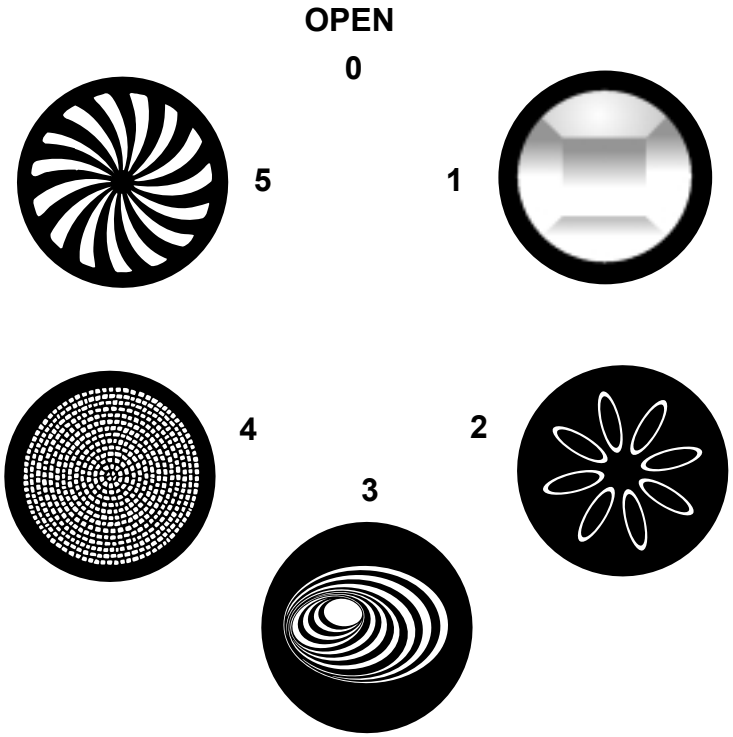
5.6.6 VL7 Standard Static Gobo Palette in order of wheel placement.



0	Open	6	4202 Vertical Bars
1	7002 Pebbles	7	4212 New Horizon
2	7025 Dust Breakup	8	7015 Block Breakup
3	6001 Medium Circle	9	5523 Tribal Breakup
4	5011 Night Sky	10	6501 Geometric Shapes
5	5501 Leaves	11	7029 Alpha Rays

See VARI*IMAGE™ catalog for rental access gobos.

5.6.7 VL7 Standard Rotating Gobo Palette in order of wheel placement.



0	Open	3	4316 Hypno Spiral
1	8005 5 Facet Prism	4	4212 Spiral Stones
2	6011 Circle of Ovals	5	7015 Pinwheel

5.7 VL7 Color Reference

5.7.1 VL7 Colors - Gel Match to 0-100 Percentage & 0-255 Values

Color Name	Number	Similar To	VL7 Spot DMX
Pink Tint	101	Lux 55	94/53/51/27 240/135/131/70
Bastard Amber	103	Lux 02	85/67/94/45 218/172/240/116
GAM Bastard Amber	104	GAM 325	94/71/94/56 240/181/240/144
Warm Bastard Amber	105	Lee 162	80/56/76/100 204/143/195/255
Pale Golden Amber	107	Lux 09	81/71/78/55 209/181/199/140
Light Amber	110	Lux 16 Lee 204	83/77/80/60 212/196/205/154
Light Flame	112	Lux 17	86/75/80/56 220/192/203/143
Medium Bastard Amber	115	Lux 04	86/66/80/59 220/167/203/151
Dark Bastard Amber	116	Lux 03	88/66/79/72 224/168/201/184
Warm Amber	122	Lee 176 Lux 01	87/73/73/64 223/185/185/162
Peach	125	GAM 320	87/86/48/42 220/220/122/108
Flesh Pink	131	Lux 34	96/80/61/33 246/205/155/85
Dark Pink	134	Lee 111	99/77/61/43 254/197/155/110
Medium Salmon	136	Lux 32	96/84/0/0 250/214/0/0
Salmon	138	Lux 41	100/96/0/0 255/244/0/0
Brite Pink	141	Lee 128	100/86/35/100 255/220/90/255
Dark Peach	145		100/85/53/100 255/218/134/255
Lee Magenta	149	Lee 113	100/96/34/100 255/244/86/255
Dark Salmon	151		100/92/38/75 255/235/97/192
Deep Salmon	155		100/98/45/100 255/250/116/255
Dark Red	161		Option - Fixed Gobo Wheel
Medium Red	164	Lux 27	
Primary Red	168	Lee 106	
Dark Orange	173	Lux 26	
Light Red	177	GAM 235	100/98/44/100 255/251/112/255
Dark Orange	181		
Orange	183	Lux 19 Lee 164	100/100/100/100 255/255/255/255
Medium Amber	187	Lux 22	100/92/100/100 255/223/255/255
Deep Golden Amber	201	GAM 345	100/85/100/100 255/217/255/255
Canary	205	Lux 21	93/83/100/100 237/212/255/255

Note: **DMX Values - First row are 0-100% values, second row are 0-255 values. VL7 referencing is for Plate 1 Color/Plate 1 Saturation/Plate 2 Color/Plate2 Saturation.**

Cont. VL7 Colors - Gel Match to 0-100 Percentage & 0-255 Values

Color Name	Number	Similar To	VL7 Spot DMX
Light Amber	208		86/100/100/100 291/255/255/255
Lee Orange	212	Lee 105	89/86/100/100 226/219/255/255
Chrome Orange	214	Lux 15 Lee 179	85/82/95/100 217/209/242/255
Bright Yellow	219		79/90/100/100 201/230/255/255
Dark Straw	221		82/99/100/100 209/252/255/255
Deep Amber	223	Lee 104	81/78/100/100 207/199/255/255
Light Yellow	225	Lee 101	72/84/100/100 184/214/255/255
Straw	237	Lux 12	79/67/100/100 203/170/255/255
Light Straw	239		76/79/86/50 193/201/220/128
No Color Green	245	Lee 213 with Lee 202	59/56/100/6 150/143/255/16
Pale Yellow-Green	251		60/85/0/0 152/216/0/0
Fern Green	254	Lee 122	53/78/81/70 134/199/206/178
Yellow-Green	256		42/100/84/87 107/255/242/255
Lime Green	257	Lee 139	47/100/95/100 121/255/242/255
Primary Green	259		39/97/87/100 99/247/223/255
Light Green	261		47/100/17/86 119/255/44/219
Moss Green	263		37/100/0/63 94/255/0/160
Light Blue-Green	267		41/73/0/0 104/184/0/0
Kelly Green	268	Lux 94	47/80/0/47 121/203/0/121
Dark Green	270	Lee 124	36/90/0/0 93/229/0/0
Fluorescent Green	273		37/85/9/83 94/218/23/211
Dark Fluor. Green	275		32/97/16/27 82/247/40/69
Blue-Grass Green	281	GAM 690 with GAM 440	29/84/0/0 73/214/0/0
Medium Blue-Green	284	Lee 116	28/87/0/67 71/221/0/170
Dark Peacock Green	286		31/82/0/70 79/209/0/178
Peacock Green	287	Lee 115	27/82/14/27 68/209/36/68
Dark Turquoise	289		26/80/0/0 66/204/0/0
Light Aqua	291		28/71/0/59 71/180/0/151
Aqua	295		25/78/16/77 63/200/40/197
Rosco Peacock Blue	298	Lux 73	41/62/3/53 105/159/7/136

Note: **DMX Values - First row are 0-100% values, second row are 0-255 values. VL7 referencing is for Plate 1 Color/Plate 1 Saturation/Plate 2 Color/Plate2 Saturation.**

Cont. VL7 Colors - Gel Match to 0-100 Percentage & 0-255 Values

Color Name	Number	Similar To	VL7 Spot DMX
Lee Steel Blue	299	Lee 117	41/52/75/7 104/132/190/17
1/4 CTB	301	Lee 203	
1/2 CTB	303	Lee 202 Lux 61	
Full CTB	307	Lee 201	
City Blue	310	GAM 847 Polycolor 70	77/56/20/54 196/143/52/138
N.C. Blue	313	GAM 840 with GAM 980	27/47/30/55 70/121/77/139
Slate Blue	318	Lee 161	26/53/10/41 67/135/26/105
Pale Blue	321	Lux 69	22/71/9/64 56/182/23/164
Lee Light Blue	325	Lee 118	28/65/9/61 72/167/23/155
Bright Blue	330	Lee 141	44/45/11/77 112/114/28/197
Medium Blue	342	Lee 132	0/28/9/100 0/71/24/255
Sea Blue	345	Lux 68 GAM 810	0/39/7/72 0/99/16/184
Icy Blue	350	Lux 68	12/48/13/100 30/123/32/255
Just Blue	355	Lee 79	
Primary Blue	359	Lux 83 GAM 850	15/84/47/85 38/215/120/217
Dark Steel Blue	365		15/100/47/100 38/255/120/255
Deep Blue	371	Lee 120	9/100/55/57 24/255/141/146
Dark Blue	374	GAM 905	9/100/58/90 24/255/148/230
Royal Blue	380	Lux 59	3/100/35/100 7/255/88/25
Indigo	403	Lee 181	0/92/69/100 0/234/175/255
Congo Blue	406		0/100/67/100 0/255/172/255
Darkest Lavender	409		0/83/51/100 0/211/131/255
Dark Rose Purple	411		0/78/66/69 0/200/169/253
Deep Lavender	415		7/85/42/55 17/216/107/139
Lilac	418		0/76/27/41 0/194/70/104
Special Dark Lavender	421	GAM 845	0/74/15/100 0/189/37/255
Cool Lavender	422		0/58/20/100 0/147/50/255
Pale Lavender	425		0/76/10/62 0/195/25/167
Mercury Vapor	429	Lux 359	0/79/33/45 0/202/83/115
Medium Violet	433	Lee 180	0/71/10/67 0/181/26/170

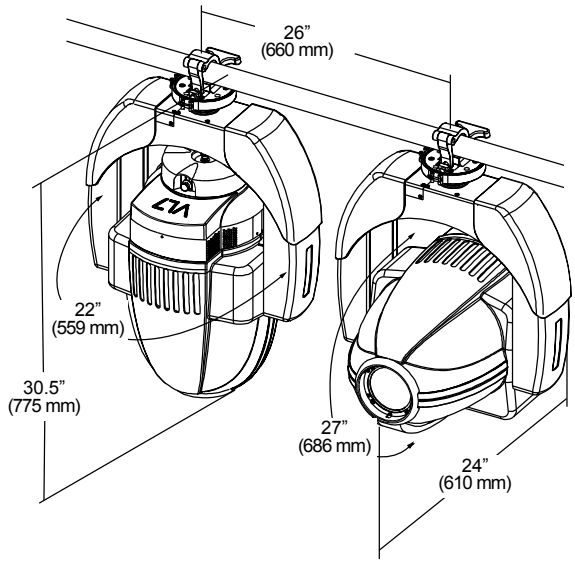
Note: **DMX Values - First row are 0-100% values, second row are 0-255 values. VL7 referencing is for Plate 1 Color/Plate 1 Saturation/Plate 2 Color/Plate2 Saturation.**

Cont. VL7 Colors - Gel Match to 0-100 Percentage & 0-255 Values

Color Name	Number	Similar To	VL7 Spot DMX
Dark Lavender	443	Lee 180	0/72/64/61 0/183/163/155
Lee Special Lavender	447	Lee 137	0/0/41/41 0/0/105/105
Twilight	451	GAM 915	12/71/29/38 30/180/75/97
Deep Lavender	455	GAM 948	0/84/61/70 0/214/156/178
Pale Lilac	461		0/77/61/45 0/197/156/114
Periwinkle	463	GAM 960 with GAM 970	0/0/58/64 0/0/149/163
Dusty Lavender	466		0/39/60/38 0/99/154/97
No Color Lilac	468	Lux 52	100/57/66/42 255/145/169/106
Special Lavender	469	Lux 54	100/44/71/50 255/113/180/128
Dark Rose	471		
Dark Fushia	474	Lux 358 with Lux 60	100/62/47/100 255/157/119/255
Dark Follies Pink	476		100/69/53/100 255/177/134/255
Magenta	478	Lee 126	
Hot Pink	480		
Mauve	483		
Follies Pink	489		100/71/48/100 255/177/124/255
Flesh Pink	491		0/0/59/48 0/0/152/123
Rose Purple	492	Lux 48 with Lux 60	100/63/59/100 255/161/150/255
Carnation	494		100/59/59/56 255/151/150/143
No Color Pink	495		100/52/59/50 255/133/150/128
Cool Bastard Amber	496	Lux 52 with Lux 33	85/59/53/42 217/151/134/107
Dusty Rose	497		80/73/53/40 205/186/134/124
Rouge	498		96/73/53/40 244/187/134/101

Note: **DMX Values - First row are 0-100% values, second row are 0-255 values. VL7 referencing is for Plate 1 Color/Plate 1 Saturation/Plate 2 Color/Plate2 Saturation.**

5.8 VL7B Spot Luminaire



Weight: 69 lbs (31.3 kg) without hook or floor stand, VL7 molded plastic two luminaire case - 155 lbs (65 kg).

Dimensions: 27 x 30.5 x 22 in. (686 x 775 x 559 mm) with hook.

Required Clearance: 26 x 26 x 30.5 in. (660 x 660 x 775 mm) with hook.

Operating Temperature: Heat Sink 250°F (121°C) Allow maximum of five minutes for cool down.

Shielded six circuit Socapex Cable Length

Length	Color Code
30’	White
60’	Green
100’	Blue

To avoid RF noise when using VL7B luminaires, a VARI*LITE shielded six circuit Socapex cable must be used on the Smart Repeater unit.

APS6 Module Indicator Lights

Red	Short
Yellow	DCV 0-10V mode
Green	Lamp On

Series 300 Lamp Cable Lengths

Shielded Lamp Cable (Black Jacket)	*Color Code*	*Smart Lamp Plus Cable*	*Color Code*
6’ 12’ 20’	WHITE RED YELLOW	50’ 100’	ORANGE BLUE

**Shielded lamp cable can be used on runs 32 feet or shorter. Smart Lamp Plus cable should be used on runs 32 feet or longer.*

Note: The VL7B lamp should burn three minutes before dousing.

5.8.1 VL7B Channel Assignments

***Mode 9 (16-bit)	***Mode 10 (Extended 16-bit)
1 Intensity	1 Intensity
2 Hi Byte Pan	2 Hi Byte Pan
3 Lo Byte Pan	3 Lo Byte Pan
4 Hi Byte Tilt	4 Hi Byte Tilt
5 Lo Byte Tilt	5 Lo Byte Tilt
6 Plate 1 Color	6 Plate 1 Color
7 Plate 1 Saturation	7 Plate 1 Saturation
8 Plate 2 Color	8 Plate 2 Color
9 Plate 2 Saturation	9 Plate 2 Saturation
10 Edge (Lens)	10 Edge (Lens)
11 Zoom (Lens)	11 Zoom (Lens)
12 Strobe	12 Strobe
13 Rotating Wheel	13 Rotating Wheel
14 Rotation/Index	14 Rotation/Index
15 Shutter 1 - Left	15 Shutter 1 - Left
16 Shutter 1 - Right	16 Shutter 1 - Right
17 Shutter 2 - Left	17 Shutter 2 - Left
18 Shutter 2 - Right	18 Shutter 2 - Right
19 Shutter 3 - Left	19 Shutter 3 - Left
20 Shutter 3 - Right	20 Shutter 3 - Right
21 Shutter 4 - Left	21 Shutter 4 - Left
22 Shutter 4 - Right	22 Shutter 4 - Right
23 Shutter Rotation	23 Shutter Rotation
24 Reset	24 Focus Time
	25 Color Time
	26 Beam Time
	27 Reset

***Only Mode 9 and 10 can be used with the VL7B luminaires.

When working in extended modes, the timing channels affect parameters as noted.

- **Focus** - pan, tilt
- **Color** - color mechanism
- **Beam** - lens, zoom, rotating gobos, index positions and shutter motors

Reset Value - With a numerical key pad, set the reset channel to DMX 84 or 33%, hold for three seconds and set channel to zero. The luminaire will now recalibrate.

5.8.2 Strobe Values

0 - 2	Open	11 - 12	Fast Random
3 - 5	Closed	13 - 255	Where 13 is greatest
6 - 7	Slow Random		interval and 255 is least
8-10	Medium Random		interval (fastest) strobe.

5.8.3 VL7B Standard Wheel Position

Rotating Gobo Wheel

0 Open
1 8005 5 Facet Prism
2 6011 Circle of Ovals
3 4316 Hypno Spiral
4 4212 Spiral Stones
5 7015 Pinwheel

5.8.4 Control of the VL7B Rotating Gobo Wheel

The control of the VL7B rotating gobo wheel is the same as the VL6B rotating gobo wheel. Please refer to **Section 5.5.6 Control of the VL6B Rotating Gobo Wheel**.

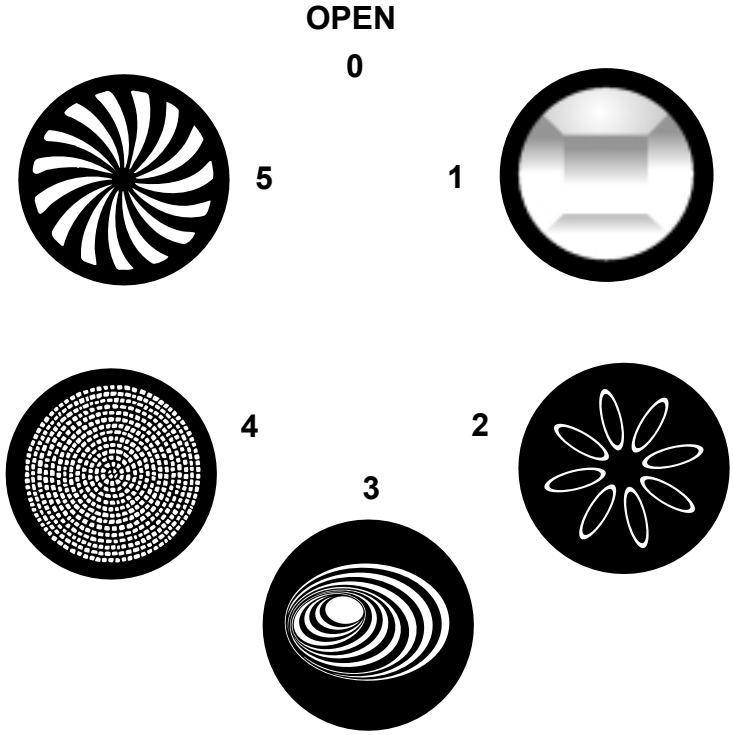
5.8.5 VL7B Shutter Controls

Using shutter controls, zero is the open position and 255 is the closed position. Using rotation channels, 128 is the halfway or zero position and 0 and 255 are the end of travel stops.

5.8.6 VL7B Color Reference

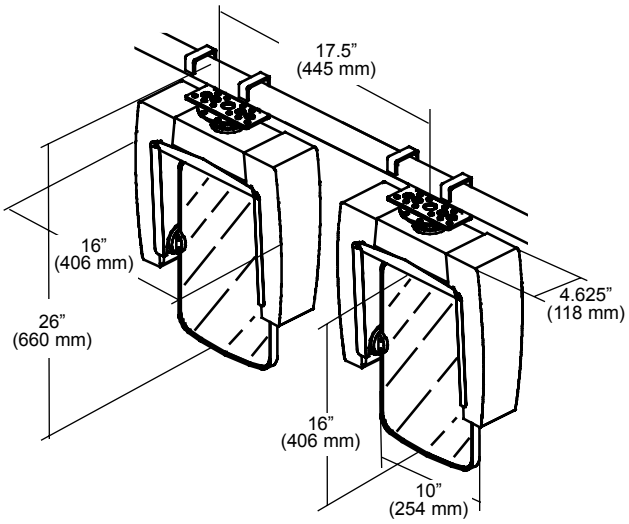
The VL7B color reference is the same as the VL7 color reference. Please refer to **Section 5.7 VL7 Color Reference.**

5.8.7 VL7B Standard Rotating Gobo Palette in order of wheel placement.



0	Open	3	4316 Hypno Spiral
1	8005 5 Facet Prism	4	4212 Spiral Stones
2	6011 Circle of Ovals	5	7015 Pinwheel

5.9 VLM Moving Mirror



WARNING: DO NOT USE THE VLM MOVING MIRROR WITH LASER BEAMS.

The VLM moving mirror does not comply with 21 CFR 1040.10, performance standards for Laser products.

Weight: 12 lbs (5 kg), Series 300 molded plastic six luminaire case - 144 lbs (65 kg)

Dimensions: 16 x 26 x 10 in. (406 x 653 x 254 mm) with hook

Required Clearance: 17.5 x 17.5 x 26 in. (445 x 445 x 660 mm) with hook

Series 300 Lamp Cable Lengths

Unshielded Lamp Cable (Gray Jacket)	*Shielded Lamp Cable (Black Jacket)*	*Color Code*
4'	**6'**	**WHITE**
8'	**12'**	**RED**
16'	**20'**	**YELLOW**
40'	**50'**	**ORANGE**
100'	**100'**	**BLUE**

**Unshielded Lamp Cables should only be used with incandescent source luminaires or the VLM. Unshielded and Shielded lamp runs should not exceed 300 ft (91.4 m).*

Packing

Be sure that the input cable of the VLM moving mirror is secured during travel. Always hook the cable either under the hook or in between the yoke and edge of the mirror.

Cleaning

Do not use a dry cloth or towel on the mirror. Using a high-quality polishing cloth, or cotton gloves, spray on just a little bit of TOPPER (VL part # 06-6038-0001) brand invisible protective coating, and rub lightly on the mirror. This does more than just clean, it puts a thin protective coating on the mirror. Be careful not to press too hard when cleaning the mirror, or you will rub the coating off and scratch the mirror.

5.9.1 VLM Assignments

Mode 1 (8-bit with Reset)	**Mode 2 (Extended 8-bit)**	**Mode 3 (16-bit)**	**Mode 4 (Extended 16-bit)**	**Mode 5 (16-bit)**
1 Hi Byte of Pan	1 Hi Byte of Pan	1 Hi Byte of Pan	1 Hi Byte of Pan	1 Hi Byte of Pan
2 Lo Byte of Pan	2 Lo Byte of Pan	2 Lo Byte of Pan	2 Lo Byte of Pan	2 Lo Byte of Pan
3 Hi Byte of Tilt	3 Hi Byte of Tilt	3 Hi Byte of Tilt	3 Hi Byte of Tilt	3 Hi Byte of Tilt
4 Lo Byte of Tilt	4 Lo Byte of Tilt	4 Lo Byte of Tilt	4 Lo Byte of Tilt	4 Lo Byte of Tilt
5 Rotation Speed >	5 Rotation Speed >	5 Rotation Speed >	5 Rotation Speed >	5 Rotation Speed >
6 Rotation Speed <	6 Rotation Speed <	6 Rotation Speed <	6 Rotation Speed <	6 Rotation Speed <
7 Unused	7 Unused	7 Unused	7 Unused	7-9 Unused
8 Reset	8 Focus Time	8 Unused	8 Unused	10 Reset
	9 Unused	9 Unused	9 Unused	11-13 Unused
	10 Unused	10 Reset	10 Focus Time	
	11 Reset		11 Unused	
			12 Unused	
			13 Reset	

Mode 6 (Extended 16-bit)	****Mode 7 (16-bit with Reset)**	****Mode 8 (Extended 16-bit)**	*****Mode 9 (16-bit)**	*****Mode 10 (Extended 16-bit)**
1 Hi Byte of Pan	1 Hi Byte of Pan	1 Hi Byte of Pan	1 Hi Byte of Pan	1 Hi Byte of Pan
2 Lo Byte of Pan	2 Lo Byte of Pan	2 Lo Byte of Pan	2 Lo Byte of Pan	2 Lo Byte of Pan
3 Hi Byte of Tilt	3 Hi Byte of Tilt	3 Hi Byte of Tilt	3 Hi Byte of Tilt	3 Hi Byte of Tilt
4 Lo Byte of Tilt	4 Lo Byte of Tilt	4 Lo Byte of Tilt	4 Lo Byte of Tilt	4 Lo Byte of Tilt
5 Rotation Speed >	5 Rotation Speed >	5 Rotation Speed >	5 Rotation Speed >	5 Rotation Speed >
6 Rotation Speed <	6 Rotation Speed <	6 Rotation Speed <	6 Rotation Speed <	6 Rotation Speed <
7 Unused	7 Unused	7 Unused	7 Unused	7 Unused
8 Unused	8 Unused	8 Unused	8 Unused	8 Unused
9 Unused	9 Unused	9 Unused	9 Unused	9 Unused
10 Focus Time	10 Reset	10 Focus Time	10 Reset	10 Focus Time
11 Unused	11-17 Unused	11 Unused	11-24 Unused	11 Unused
12 Unused		12 Unused		12 Unused
13 Reset		13 Reset		13 Reset
14-17 Unused		14-20 Unused		14-27 Unused

**These modes are required if a VL7 spot luminaire is used on the same Smart Repeater Plus unit as the VLM units.

***These modes are required if a VL7B spot luminaire is used on the same Smart Repeater Plus unit as the VLM units.

When working in extended modes, the timing channels affect parameters as noted.

- **Focus** - pan, tilt
- **Color** - N/A
- **Beam** - N/A

Reset Value - With a numerical key pad, set the reset channel to DMX 84 or 33%, hold for three seconds and set channel to zero. The luminaire will now recalibrate.

Chapter 6. System Operation

While the term “System Operation” generally includes console operation, this guide will only address operation of the Vari-Lite portion of the lighting system.

6.1 Fixture Orientation

The orientation of the fixture is determined by which way the pigtail faces as it exits the luminaire. The way a fixture is hung affects the direction it will point when it reaches its stop mechanism. If one luminaire is hung differently from the others, the position (focus) will also be different. There should be some consistent order to the way the pigtail faces: all stage left, all stage right, etc.

6.2 Focus Information

In order to avoid a “flipped focus” (when one or more fixtures move differently from others in the system), begin all preset focuses (a group of channels representing the pan and tilt values for a particular stage position) from zero position or “50/50” (pan and tilt values at 50%). This “50/50” can be stored as a group, and can be recalled before recording any other fixture’s focus information.

Also remember that the luminaires will take the shortest path from one position to the next; in DMX, this is the path described by the change in value per channel from one position to the next. In order to ensure consistent movement from luminaire to luminaire in the cueing structure, tilt each fixture first before moving the pan channel. In most cases, it is best when luminaires pan less than 180˚ from one focus position to another, allowing for smoother and more consistent transitions between cues.

6.3 Timing Channel Information

Timing channel functionality has been instituted to allow extremely fine control over focus movement, color and beam parameters. Timing channels support time values of up to six minutes.

The end states of the selected parameters, along with the transition time, must be transmitted to the Smart Repeater unit in time zero. The Smart Repeater unit then calculates the required transition rather than using incremental DMX instructions.

The particular storing syntax for your console, as well as instructions on how to write part cues, can be found in the operation manual for that console. Timing channels give you Artisan-like control over your luminaires.

A time value of zero is full speed. A time value of 100% (or 255 in DMX) causes the associated parameter(s) to follow cue fade time rather than the timing channel. To use these channels, you must:

1. Create the cue, including color, gobo, edge, diffusion, etc.
2. Decide which fixtures and which parameter(s) will use timing channels.
3. Assign a value to the particular timing channel(s) you wish to use (for timing information see the table in **Chapter 4. System Patching**).
4. Create a part cue containing only the attributes chosen and their associated timing channels. Store this part cue with a fade time of zero seconds.
5. Store the rest of the cue using console timing.

6.3.1 DMX Value to Time Relationship, in seconds

Timing channels can be set in either percentage or 0-255 (DMX) modes, with the following values assigned.

Note: The Focus timing channel will affect only the VLM moving mirror's pan transitions when the rotation channel is used.

DMX	PERCENT	=SECONDS	DMX	PERCENT	=SECONDS
0	0	FULL SPEED	25	10	5.0
1		0.2	26		5.2
2		0.4	27		5.4
3	1	0.6	28	11	5.6
4		0.8	29		5.8
5	2	1.0	30		6.0
6		1.2	31	12	6.2
7		1.4	32		6.4
8	3	1.6	33	13	6.6
9		1.8	34		6.8
10	4	2.0	35		7.0
11		2.2	36	14	7.2
12		2.4	37		7.4
13	5	2.6	38	15	7.6
14		2.8	39		7.8
15	6	3.0	40		8.0
16		3.2	41	16	8.2
17		3.4	42		8.4
18	7	3.6	43	17	8.6
19		3.8	44		8.8
20	8	4.0	45		9.0
21		4.2	46	18	9.2
22		4.4	47		9.4
23	9	4.6	48	19	9.6
24		4.8	49		9.8

DMX	PERCENT	=SECONDS	DMX	PERCENT	=SECONDS
50		10.0	102	40	30.0
51	20	10.2	103		30.0
52		10.4	104		31.0
53		10.6	105	41	31.0
54	21	11.0	106		32.0
55		11.0	107	42	32.0
56	22	12.0	108		32.0
57		12.0	109		33.0
58		13.0	110	43	33.0
59	23	13.0	111		34.0
60		14.0	112	44	34.0
61	24	14.0	113		34.0
62		14.0	114		35.0
63		15.0	115	45	35.0
64	25	15.0	116		36.0
65		16.0	117	46	36.0
66	26	16.0	118		36.0
67		16.0	119		37.0
68		16.0	120	47	37.0
69	27	17.0	121		38.0
70		17.0	122	48	38.0
71	28	18.0	123		38.0
72		18.0	124		39.0
73		18.0	125	49	39.0
74	29	19.0	126		39.0
75		19.0	127		40.0
76	30	20.0	128	50	40.0
77		20.0	129		41.0
78		21.0	130	51	41.0
79	31	21.0	131		41.0
80		21.0	132		42.0
81		22.0	133	52	42.0
82	32	22.0	134		43.0
83		23.0	135	53	43.0
84	33	23.0	136		43.0
85		23.0	137		44.0
86		24.0	138	54	44.0
87	34	24.0	139		45.0
88		25.0	140	55	45.0
89	35	25.0	141		45.0
90		25.0	142		46.0
91		26.0	143	56	46.0
92	36	26.0	144		47.0
93		27.0	145	57	47.0
94	37	27.0	146		47.0
95		27.0	147		48.0
96		28.0	148	58	48.0
97	38	28.0	149		49.0
98		29.0	150	59	49.0
99	39	29.0	151		49.0
100		29.0	152		50.0
101		30.0	153	60	50.0

DMX	PERCENT	=SECONDS	DMX	PERCENT	=SECONDS
154		50.0	205		120.0
155		51.0	206		130.0
156	61	51.0	207	81	130.0
157		52.0	208		140.0
158	62	52.0	209	82	140.0
159		52.0	210		140.0
160		53.0	211		150.0
161	63	53.0	212	83	150.0
162		54.0	213		160.0
163	64	54.0	214	84	160.0
164		54.0	215		160.0
165		55.0	216		170.0
166	65	55.0	217	85	170.0
167		56.0	218		180.0
168	66	56.0	219	86	180.0
169		56.0	220		180.0
170		57.0	221		190.0
171	67	57.0	222	87	190.0
172		58.0	223		200.0
173	68	58.0	224	88	200.0
174		58.0	225		200.0
175		59.0	226		210.0
176	69	59.0	227	89	210.0
177		59.0	228		210.0
178		60.0	229		220.0
179	70	60.0	230	90	220.0
180		65.0	231		230.0
181	71	65.0	232	91	230.0
182		65.0	233		230.0
183		70.0	234		240.0
184	72	70.0	235	92	240.0
185		75.0	236		250.0
186	73	75.0	237	93	250.0
187		75.0	238		250.0
188		80.0	239		260.0
189	74	80.0	240	94	260.0
190		85.0	241		270.0
191	75	85.0	242	95	270.0
192		85.0	243		270.0
193		90.0	244		280.0
194	76	90.0	245	96	280.0
195		95.0	246		290.0
196	77	95.0	247	97	290.0
197		95.0	248		290.0
198		100.0	249		300.0
199	78	100.0	250	98	300.0
200		110.0	251		310.0
201	79	110.0	252	99	310.0
202		110.0	253		310.0
203		120.0	254		310.0
204	80	120.0	255	100	FOLLOWS CUE DATA

6.4 Mini-Stepping

Mini-stepping has been added for the VL6 gobo and color wheels when an extended mode (Mode 2, 4, 6, 8 or 10) is used. Mini-stepping, which smooths wheel transitions will be active for Wheel 1 (gobo) when the beam time channel has a value between 1 and 254. It will be active for Wheel 2 (color) when the color time channel has a value between 1 and 254. When the value is set at either 0 or 255, mini-stepping will be inactive.

6.5 Luminaire Reset

The ability to reset (recalibrate) a luminaire is now available to DMX consoles. The reset channel will cause the associated luminaire to recalibrate when set to 33% (84 in DMX) for three seconds and then returned to zero. **(This must be done with a numeric keypad, not with an encoder or potentiometer.)**

When used with a DMX Power Pack (DPP), this channel also allows for remote start and douse of an arc source. When the channel is set to 66% (168 in DMX) for three seconds and then returned to zero, the lamp will douse. When set to 99% (252 in DMX) for three seconds and then returned to zero, the lamp will strike. (This should be done with a numeric keypad not with an encoder or potentiometer.)

Note: Intermediate values occurring between the command value and zero will cancel the command.

6.6 Mode Channel Maps

6.6.1 DMX512 Channel Table in Mode 1 (8-bit with Reset)

Port Number	DMX512 Channel	VL5 and VL5B Wash Luminaire	VL5Arc Wash Luminaire	VL6 Spot Luminaire	VLM Moving Mirror
1	1	EXTERNAL DIMMER*	INTENSITY	INTENSITY	HI BYTE OF PAN
	2	PAN	PAN	PAN	LO BYTE OF PAN
	3	TILT	TILT	TILT	HI BYTE OF TILT
	4	BLUE	BLUE	WHEEL 1	LO BYTE OF TILT
	5	AMBER	AMBER	WHEEL 2	ROTATION SPEED >
	6	MAGENTA	MAGENTA	BEAM IRIS	ROTATION SPEED <
	7	DIFFUSION	DIFFUSION	EDGE (LENS)	——
	8	RESET	RESET	RESET	RESET
2	9-16				
3	17-24				
4	25-32				
5	33-40				
6	41-48				

***When a DMX Power Pack is used, the first port channel controls the integral C3 dimmer module for the VL5 and VL5B luminaires.**

6.6.2 DMX512 Channel Table in Mode 2 (8-bit Extended)

Port Number	DMX512 Channel	VL5 and VL5B Wash Luminaire	VL5Arc Wash Luminaire	VL6 Spot Luminaire	VLM Moving Mirror
1	1	EXTERNAL DIMMER*	INTENSITY	INTENSITY	HI BYTE OF PAN
	2	PAN	PAN	PAN	LO BYTE OF PAN
	3	TILT	TILT	TILT	HI BYTE OF TILT
	4	BLUE	BLUE	WHEEL 1	LO BYTE OF TILT
	5	AMBER	AMBER	WHEEL 2	ROTATION SPEED >
	6	MAGENTA	MAGENTA	BEAM IRIS	ROTATION SPEED <
	7	DIFFUSION	DIFFUSION	EDGE (LENS)	——
	8	FOCUS TIME	FOCUS TIME	FOCUS TIME	FOCUS TIME
	9	COLOR TIME	COLOR TIME	COLOR TIME	——
	10	BEAM TIME	BEAM TIME	BEAM TIME	——
	11	RESET	RESET	RESET	RESET
2	12-22				
3	23-33				
4	34-44				
5	45-55				
6	56-66				

***When a DMX Power Pack is used, the first port channel controls the integral C3 dimmer module for the VL5 and VL5B luminaires.**

6.6.3 DMX512 Channel Table in Mode 3 (16-bit with Reset)

Port Number	DMX512 Channel	VL5 and VL5B Wash Luminaire	VL5Arc Wash Luminaire	VL6 Spot Luminaire	VLM Moving Mirror
1	1	EXTERNAL DIMMER*	INTENSITY	INTENSITY	HI BYTE OF PAN
	2	HI BYTE OF PAN	HI BYTE OF PAN	HI BYTE OF PAN	LO BYTE OF PAN
	3	LO BYTE OF PAN	LO BYTE OF PAN	LO BYTE OF PAN	HI BYTE OF TILT
	4	HI BYTE OF TILT	HI BYTE OF TILT	HI BYTE OF TILT	LO BYTE OF TILT
	5	LO BYTE OF TILT	LO BYTE OF TILT	LO BYTE OF TILT	ROTATION SPEED >
	6	BLUE	BLUE	WHEEL 1	ROTATION SPEED <
	7	AMBER	AMBER	WHEEL 2	——
	8	MAGENTA	MAGENTA	BEAM IRIS	——
	9	DIFFUSION	DIFFUSION	EDGE (LENS)	——
	10	RESET	RESET	RESET	RESET
2	11-20				
3	21-30				
4	31-40				
5	41-50				
6	51-60				

***When a DMX Power Pack is used, the first port channel controls the integral C3 dimmer module for the VL5 and VL5B luminaires.**

6.6.4 DMX512 Channel Table in Mode 4 (16-bit Extended)

Port Number	DMX512 Channel	VL5 and VL5B Wash Luminaire	VL5Arc Wash Luminaire	VL6 Spot Luminaire	VLM Moving Mirror
1	1	EXTERNAL DIMMER*	INTENSITY	INTENSITY	HI BYTE OF PAN
	2	HI BYTE OF PAN	HI BYTE OF PAN	HI BYTE OF PAN	LO BYTE OF PAN
	3	LO BYTE OF PAN	LO BYTE OF PAN	LO BYTE OF PAN	HI BYTE OF TILT
	4	HI BYTE OF TILT	HI BYTE OF TILT	HI BYTE OF TILT	LO BYTE OF TILT
	5	LO BYTE OF TILT	LO BYTE OF TILT	LO BYTE OF TILT	ROTATION SPEED >
	6	BLUE	BLUE	WHEEL 1	ROTATION SPEED <
	7	AMBER	AMBER	WHEEL 2	——
	8	MAGENTA	MAGENTA	BEAM IRIS	——
	9	DIFFUSION	DIFFUSION	EDGE (LENS)	——
	10	FOCUS TIME	FOCUS TIME	FOCUS TIME	FOCUS TIME
	11	COLOR TIME	COLOR TIME	COLOR TIME	——
	12	BEAM TIME	BEAM TIME	BEAM TIME	——
	13	RESET	RESET	RESET	RESET
2	14-27				
3	27-39				
4	40-52				
5	53-65				
6	66-78				

*When a DMX Power Pack is used, the first port channel controls the integral C3 dimmer module for the VL5 and VL5B luminaires.

6.6.5 DMX512 Channel Table in Mode 5 (16-bit with Reset)

Port Number	DMX512 Channel	VL5 and VL5B Wash Luminaire	VL5Arc Wash Luminaire	VL6 Spot Luminaire	VL6B Spot Luminaire	VLM Moving Mirror
1	1	EXTERNAL DIMMER*	INTENSITY	INTENSITY	INTENSITY	HI BYTE OF PAN
	2	HI BYTE OF PAN	HI BYTE OF PAN	HI BYTE OF PAN	HI BYTE OF PAN	LO BYTE OF PAN
	3	LO BYTE OF PAN	LO BYTE OF PAN	LO BYTE OF PAN	LO BYTE OF PAN	HI BYTE OF TILT
	4	HI BYTE OF TILT	HI BYTE OF TILT	HI BYTE OF TILT	HI BYTE OF TILT	LO BYTE OF TILT
	5	LO BYTE OF TILT	LO BYTE OF TILT	LO BYTE OF TILT	LO BYTE OF TILT	ROTATION SPEED >
	6	BLUE	BLUE	WHEEL 1	WHEEL 1	ROTATION SPEED <
	7	AMBER	AMBER	WHEEL 2	WHEEL 2	——
	8	MAGENTA	MAGENTA	BEAM SIZE	BEAM SIZE	——
	9	DIFFUSION	DIFFUSION	EDGE (LENS)	EDGE (LENS)	——
	10	RESET	RESET	STROBE	STROBE	RESET
	11	——	——	RESET	ZOOM (LENS)	——
	12	——	——	——	ROTATING WHEEL	——
	13	——	——	——	ROTATION/INDEX	——
	14	——	——	——	RESET	——
2	15-28					
3	29-42					
4	43-56					
5	57-70					
6	71-84					

*When a DMX Power Pack is used, the first port channel controls the integral C3 dimmer module for the VL5 and VL5B luminaires.

6.6.6 DMX512 Channel Table in Mode 6 (16-bit Extended)

Port Number	DMX512 Channel	VL5 and VL5B Wash Luminaire	VL5Arc Wash Luminaire	VL6 Spot Luminaire	VL6B Spot Luminaire	VLM Moving Mirror
1	1	EXTERNAL DIMMER*	INTENSITY	INTENSITY	INTENSITY	HI BYTE OF PAN
	2	HI BYTE OF PAN	HI BYTE OF PAN	HI BYTE OF PAN	HI BYTE OF PAN	LO BYTE OF PAN
	3	LO BYTE OF PAN	LO BYTE OF PAN	LO BYTE OF PAN	LO BYTE OF PAN	HI BYTE OF TILT
	4	HI BYTE OF TILT	HI BYTE OF TILT	HI BYTE OF TILT	HI BYTE OF TILT	LO BYTE OF TILT
	5	LO BYTE OF TILT	LO BYTE OF TILT	LO BYTE OF TILT	LO BYTE OF TILT	ROTATION SPEED >
	6	BLUE	BLUE	WHEEL 1	WHEEL 1	ROTATION SPEED <
	7	AMBER	AMBER	WHEEL 2	WHEEL 2	——
	8	MAGENTA	MAGENTA	BEAM IRIS	BEAM IRIS	——
	9	DIFFUSION	DIFFUSION	EDGE (LENS)	EDGE (LENS)	——
	10	FOCUS TIME	FOCUS TIME	STROBE	STROBE	FOCUS TIME
	11	COLOR TIME	COLOR TIME	FOCUS TIME	ZOOM (LENS)	——
	12	BEAM TIME	BEAM TIME	COLOR TIME	ROTATING WHEEL	——
	13	RESET	RESET	BEAM TIME	ROTATION/INDEX	RESET
	14	——	——	RESET	FOCUS TIME	——
	15	——	——	——	COLOR TIME	——
	16	——	——	——	BEAM TIME	——
	17	——	——	——	RESET	——
2	18-34					
3	35-51					
4	52-68					
5	69-85					
6	86-102					

When a DMX Power Pack is used, the first port channel controls the integral C3 dimmer module for the VL5 and VL5B luminaires.

6.6.7 DMX512 Channel Table in Mode 7 (16-bit with Reset) Smart Repeater Plus Unit Only

Port #	DMX512 Channel	VL5 and VL5B Wash Luminaire	VL5Arc Wash Luminaire	VL6 Spot Luminaire	VL6B Spot Luminaire	VL7 Spot Luminaire	VLM Moving Mirror
1	1	EXTERNAL DIMMER*	INTENSITY	INTENSITY	INTENSITY	INTENSITY	HI BYTE OF PAN
	2	HI BYTE OF PAN	HI BYTE OF PAN	HI BYTE OF PAN	HI BYTE OF PAN	HI BYTE OF PAN	LO BYTE OF PAN
	3	LO BYTE OF PAN	LO BYTE OF PAN	LO BYTE OF PAN	LO BYTE OF PAN	LO BYTE OF PAN	HI BYTE OF TILT
	4	HI BYTE OF TILT	HI BYTE OF TILT	HI BYTE OF TILT	HI BYTE OF TILT	HI BYTE OF TILT	LO BYTE OF TILT
	5	LO BYTE OF TILT	LO BYTE OF TILT	LO BYTE OF TILT	LO BYTE OF TILT	LO BYTE OF TILT	ROTATION SPEED >
	6	BLUE	BLUE	WHEEL 1	WHEEL 1	PLATE 1 COLOR	ROTATION SPEED <
	7	AMBER	AMBER	WHEEL 2	WHEEL 2	PLATE 1 SATURATION	—
	8	MAGENTA	MAGENTA	BEAM SIZE	BEAM IRIS	PLATE 2 COLOR	—
	9	DIFFUSION	DIFFUSION	EDGE (LENS)	EDGE (LENS)	PLATE 2 SATURATION	—
	10	RESET	RESET	STROBE	STROBE	BEAM IRIS	RESET
	11	—	—	RESET	ZOOM (LENS)	EDGE (LENS)	—
	12	—	—	—	ROTATING WHEEL	ZOOM (LENS)	—
	13	—	—	—	ROTATION/INDEX	STROBE	—
	14	—	—	—	RESET	FIXED WHEEL	—
	15	—	—	—	—	ROTATING WHEEL	—
	16	—	—	—	—	ROTATION/INDEX	—
	17	—	—	—	—	RESET	—
2	18-34						
3	35-51						
4	52-68						
5	69-85						
6	86-102						

*When a DMX Power Pack is used, the first port channel controls the integral C3 dimmer module for the VL5 and VL5B luminaires.

6.6.8 DMX512 Channel Table in Mode 8 (16-bit Extended) Smart Repeater Plus Unit Only

Port #	DMX512 Channel	VL5 and VL5B Wash Luminaire	VL5Arc Wash Luminaire	VL6 Spot Luminaire	VL6B Spot Luminaire	VL7 Spot Luminaire	VLM Moving Mirror
1	1	EXTERNAL DIMMER*	INTENSITY	INTENSITY	INTENSITY	INTENSITY	HI BYTE OF PAN
	2	HI BYTE OF PAN	HI BYTE OF PAN	HI BYTE OF PAN	HI BYTE OF PAN	HI BYTE OF PAN	LO BYTE OF PAN
	3	LO BYTE OF PAN	LO BYTE OF PAN	LO BYTE OF PAN	LO BYTE OF PAN	LO BYTE OF PAN	HI BYTE OF TILT
	4	HI BYTE OF TILT	HI BYTE OF TILT	HI BYTE OF TILT	HI BYTE OF TILT	HI BYTE OF TILT	LO BYTE OF TILT
	5	LO BYTE OF TILT	LO BYTE OF TILT	LO BYTE OF TILT	LO BYTE OF TILT	LO BYTE OF TILT	ROTATION SPEED >
	6	BLUE	BLUE	WHEEL 1	WHEEL 1	PLATE 1 COLOR	ROTATION SPEED <
	7	AMBER	AMBER	WHEEL 2	WHEEL 2	PLATE 1 SATURATION	—
	8	MAGENTA	MAGENTA	BEAM IRIS	BEAM IRIS	PLATE 2 COLOR	—
	9	DIFFUSION	DIFFUSION	EDGE (LENS)	EDGE (LENS)	PLATE 2 SATURATION	—
	10	FOCUS TIME	FOCUS TIME	STROBE	STROBE	BEAM IRIS	FOCUS TIME
	11	COLOR TIME	COLOR TIME	FOCUS TIME	ZOOM (LENS)	EDGE (LENS)	—
	12	BEAM TIME	BEAM TIME	COLOR TIME	ROTATING WHEEL	ZOOM (LENS)	—
	13	RESET	RESET	BEAM TIME	ROTATION/INDEX	STROBE	RESET
	14	—	—	RESET	FOCUS TIME	FIXED WHEEL	—
	15	—	—	—	COLOR TIME	ROTATING WHEEL	—
	16	—	—	—	BEAM TIME	ROTATION/INDEX	—
	17	—	—	—	RESET	FOCUS TIME	—
	18	—	—	—	—	COLOR TIME	—
	19	—	—	—	—	BEAM TIME	—
	20	—	—	—	—	RESET	—
2	21-40						
3	41-60						
4	61-80						
5	81-100						
6	101-120						

*When a DMX Power Pack is used, the first port channel controls the integral C3 dimmer module for the VL5 and VL5B luminaires.

6.6.9 DMX512 Channel Table in Mode 9 (16-bit with Reset) Smart Repeater Plus Unit Only

Port #	DMX512 Channel	VL5 and VL5B Wash Luminaire	VL5Arc Wash Luminaire	VL6 Spot Luminaire	VL6B Spot Luminaire	VL7 Spot Luminaire	VL7B Spot Luminaire	VLM Moving Mirror
1	1	EXTERNAL DIMMER*	INTENSITY	INTENSITY	INTENSITY	INTENSITY	INTENSITY	HI BYTE OF PAN
	2	HI BYTE OF PAN	HI BYTE OF PAN	HI BYTE OF PAN	HI BYTE OF PAN	HI BYTE OF PAN	HI BYTE OF PAN	LO BYTE OF PAN
	3	LO BYTE OF PAN	LO BYTE OF PAN	LO BYTE OF PAN	LO BYTE OF PAN	LO BYTE OF PAN	LO BYTE OF PAN	HI BYTE OF TILT
	4	HI BYTE OF TILT	HI BYTE OF TILT	HI BYTE OF TILT	HI BYTE OF TILT	HI BYTE OF TILT	HI BYTE OF TILT	LO BYTE OF TILT
	5	LO BYTE OF TILT	LO BYTE OF TILT	LO BYTE OF TILT	LO BYTE OF TILT	LO BYTE OF TILT	LO BYTE OF TILT	ROTATION SPEED >
	6	BLUE	BLUE	WHEEL 1	WHEEL 1	PLATE 1 COLOR	PLATE 1 COLOR	ROTATION SPEED <
	7	AMBER	AMBER	WHEEL 2	WHEEL 2	PLATE 1 SATURATION	PLATE 1 SATURATION	—
	8	MAGENTA	MAGENTA	BEAM SIZE	BEAM IRIS	PLATE 2 COLOR	PLATE 2 COLOR	—
	9	DIFFUSION	DIFFUSION	EDGE (LENS)	EDGE (LENS)	PLATE 2 SATURATION	PLATE 2 SATURATION	—
	10	RESET	RESET	STROBE	STROBE	BEAM IRIS	EDGE (LENS)	RESET
	11	—	—	RESET	ZOOM (LENS)	EDGE (LENS)	ZOOM (LENS)	—
	12	—	—	—	ROTATING WHEEL	ZOOM (LENS)	STROBE	—
	13	—	—	—	ROTATION/INDEX	STROBE	ROTATING WHEEL	—
	14	—	—	—	RESET	FIXED WHEEL	ROTATION/INDEX	—
	15	—	—	—	—	ROTATING WHEEL	SHUTTER 1 - LEFT	—
	16	—	—	—	—	ROTATION/INDEX	SHUTTER 1 - RIGHT	—
	17	—	—	—	—	RESET	SHUTTER 2 - LEFT	—
	18	—	—	—	—	—	SHUTTER 2 - RIGHT	—
	19	—	—	—	—	—	SHUTTER 3 - LEFT	—
	20	—	—	—	—	—	SHUTTER 3 - RIGHT	—
	21	—	—	—	—	—	SHUTTER 4 - LEFT	—
	22	—	—	—	—	—	SHUTTER 4 - RIGHT	—
	23	—	—	—	—	—	SHUTTER ROTATION	—
	24	—	—	—	—	—	RESET	—
2	25-28							
3	49-72							
4	73-96							
5	97-120							
6	121-144							

*When a DMX Power Pack is used, the first port channel controls the integral C3 dimmer module for the VL5 and VL5B luminaires.

6.6.10 DMX512 Channel Table in Mode 10 (16-bit Extended) Smart Repeater Plus Unit Only

Port #	DMX512 Channel	VL5 and VL5B Wash Luminaire	VL5Arc Wash Luminaire	VL6 Spot Luminaire	VL6B Spot Luminaire	VL7 Spot Luminaire	VL7B Spot Luminaire	VLM Moving Mirror
1	1	EXTERNAL DIMMER*	INTENSITY	INTENSITY	INTENSITY	INTENSITY	INTENSITY	HI BYTE OF PAN
	2	HI BYTE OF PAN	HI BYTE OF PAN	HI BYTE OF PAN	HI BYTE OF PAN	HI BYTE OF PAN	HI BYTE OF PAN	LO BYTE OF PAN
	3	LO BYTE OF PAN	LO BYTE OF PAN	LO BYTE OF PAN	LO BYTE OF PAN	LO BYTE OF PAN	LO BYTE OF PAN	HI BYTE OF TILT
	4	HI BYTE OF TILT	HI BYTE OF TILT	HI BYTE OF TILT	HI BYTE OF TILT	HI BYTE OF TILT	HI BYTE OF TILT	LO BYTE OF TILT
	5	LO BYTE OF TILT	LO BYTE OF TILT	LO BYTE OF TILT	LO BYTE OF TILT	LO BYTE OF TILT	LO BYTE OF TILT	ROTATION SPEED >
	6	BLUE	BLUE	WHEEL 1	WHEEL 1	PLATE 1 COLOR	PLATE 1 COLOR	ROTATION SPEED <
	7	AMBER	AMBER	WHEEL 2	WHEEL 2	PLATE 1 SATURATION	PLATE 1 SATURATION	—
	8	MAGENTA	MAGENTA	BEAM SIZE	BEAM IRIS	PLATE 2 COLOR	PLATE 2 COLOR	—
	9	DIFFUSION	DIFFUSION	EDGE (LENS)	EDGE (LENS)	PLATE 2 SATURATION	PLATE 2 SATURATION	—
	10	FOCUS TIME	FOCUS TIME	STROBE	STROBE	BEAM IRIS	EDGE (LENS)	FOCUS TIME
	11	COLOR TIME	COLOR TIME	FOCUS TIME	ZOOM (LENS)	EDGE (LENS)	ZOOM (LENS)	—
	12	BEAM TIME	BEAM TIME	COLOR TIME	ROTATING WHEEL	ZOOM (LENS)	STROBE	—
	13	RESET	RESET	BEAM TIME	ROTATION/INDEX	STROBE	ROTATING WHEEL	RESET
	14	—	—	RESET	FOCUS TIME	FIXED WHEEL	ROTATION/INDEX	—
	15	—	—	—	COLOR TIME	ROTATING WHEEL	SHUTTER 1 - LEFT	—
	16	—	—	—	BEAM TIME	ROTATION/INDEX	SHUTTER 1 - RIGHT	—
	17	—	—	—	RESET	FOCUS TIME	SHUTTER 2 - LEFT	—
	18	—	—	—	—	COLOR TIME	SHUTTER 2 - RIGHT	—
	19	—	—	—	—	BEAM TIME	SHUTTER 3 - LEFT	—
	20	—	—	—	—	RESET	SHUTTER 3 - RIGHT	—
	21	—	—	—	—	—	SHUTTER 4 - LEFT	—
	22	—	—	—	—	—	SHUTTER 4 - RIGHT	—
	23	—	—	—	—	—	SHUTTER ROTATION	—
	24	—	—	—	—	—	FOCUS TIME	—
	25	—	—	—	—	—	COLOR TIME	—
	26	—	—	—	—	—	BEAM TIME	—
	27	—	—	—	—	—	RESET	—
2	28-54							
3	55-81							
4	82-108							
5	109-135							
6	136-162							

*When a DMX Power Pack is used, the first port channel controls the integral C3 dimmer module for the VL5 and VL5B luminaires.

Chapter 7. System Troubleshooting

Occasionally there are problems when setting up a lighting system. In this section, you will find many common questions that have been asked about VARI✻LITE equipment under DMX control. We have broken this section down into three areas: Console Problems, Fixture Problems and Hardware Problems. Determine where your problem exists (careful -- some problems that appear to be fixture related end up being patch related), and read the appropriate section for an answer to your question. Remember -- there are many questions, and we cannot answer all of them here, but hopefully we can point you in the direction of a solution.

7.1 Console Problems

Console won't power up.

Ensure that the console is plugged into a working outlet and that the proper voltage is present.

One of the Monitors isn't working.

Ensure that the monitors are plugged into a working outlet, they are securely plugged into the monitor outlet on the console and that the console has been properly setup for the number of monitors being used.

My monitor display is scrolling and I can't understand it.

Ensure that the proper type of monitor (VGA, SVGA, EVGA) is connected to your console.

I've programmed my show using an Extended Mode, and during the editing process, it's really annoying having to wait for the cue to complete before I can work on the cue.

To "disable" the timing values while updating cues, create a submaster of all the timing channels and run it to full to override any recorded timing channels. Remember to clear the sub before recording the updated cue.

My patch is good, and my Smart Repeater units are addressed properly, but I can't control any lights.

Check the DMX connection on the back of the console to make sure it is connected to the proper DMX output (or universe). If you are using a splitter in a system with multiple DMX universes, make sure it has power is receiving signal from the proper DMX universe. Check Smart Repeater units for the seven-segment display showing the DMX mode setting and the "d" alternating. An "N" is displayed if the DMX data has been lost.

7.2 Series 300 Fixture Problems

Why do luminaires not move as smoothly on DMX512 as they do on a Series 200 control?

A DMX512 control system sends out movement as incremental absolute positions. In other words, when you want a luminaire to go from 0% position (0 hex value) to an end state of 50% (127 hex value), the luminaire is told to move incrementally through each hex or per cent value until it reaches the end state. The luminaire is constantly stopping and starting. This is alleviated by using modes with extended timing channels.

Under VARI✻LITE Series 200 control, the luminaire knows its current position and its ending position. Once the luminaire receives a cue command from the console, it calculates how far it needs to move, how much time it has to get there, and goes without starting and stopping between its beginning and end state.

I cannot get full movement from my fixtures.

Make sure that there are no cables hanging down to cause interference with the luminaires.

Why do my VL6 color wheels get stuck during playback?

Allow a cue to complete before advancing to the next cue. Rushing or "stepping on" cues sends a confusing update of DMX information to the luminaire.

I can control the VL5 luminaire but not the dimmer.

Ensure that the remote dimmer is patched to the proper control channel for the luminaire. If there is an SPC-36 controlling C3 dimmers, check it's power, thumbwheel address and all cables between it and each SixPack chassis. Also, ensure that the SPC-36 and dimmer are seeing a proper DMX signal.

My lights are flickering or moving erratically.

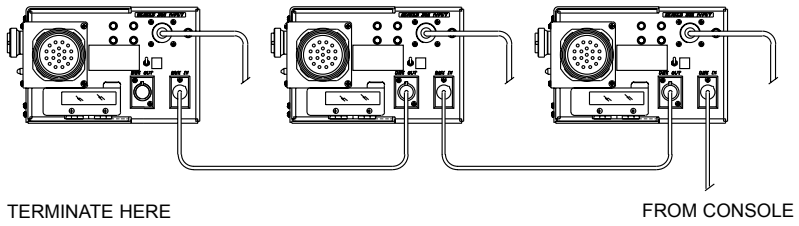
Make sure that the DMX lines from the console are not bundled with or run next to your feeder or other high voltage cable. If the DMX line must cross power cable, make sure it crosses at a 90˚ angle to the power cable for the best performance.

I checked my cable, but I still get flickering lights.

Check each DMX device for termination. Only the last device on any DMX line must be terminated. Over termination in your system can cause bad signal to reach the lights and dimmers causing them to flicker.

I checked for termination, but my lights still flicker.

Check your DMX network. DMX signal is best run as a "daisy chain" from one device to another. If your system is sufficiently large, or your luminaires are spread out over a considerable distance, you may be using an splitter (or opto-isolator) to safely create a "star pattern" of isolated DMX runs. Again, be sure to terminate the last device on any DMX run. An splitter can eliminate ground loop problems that may cause flickering.



My network is good, but I still have problems.

Try replacing each DMX cable one at a time to see if there is a bad cable in your system.

My network is good, but my lights still flicker.

Use a DMX tool (DMX'ster, GAM Check or equivalent) to monitor the output of your console. If the data coming from the console is bad, the entire system may flicker.

I'm using timing channels in Extended Mode and my lights are moving in a jerky and erratic manner.

Ensure that you are not sending both timing channel values and console cue time to the Smart Repeater units. The software in the Smart Repeater unit can resolve one timing information or the other, but not both simultaneously. Check the console manual to find the proper syntax to create a part cue with a time of zero.

Now that I've programmed my whole show using timing channels in Extended Mode, I can't "back into" or "skip" a cue for editing without waiting for the timing to complete.

Create a submaster or group of all timing channels for all luminaires at a level of 100%. Enable this submaster or group before sending the "go back" or "go to cue" command. Don't forget to clear the submaster or group before updating the cue. Remember a value of 100% in a timing channel causes that channel to react to cue timing.

7.3 Hardware Problems

None of the lights on one of my Smart Repeater units is working.

Ensure that the proper voltage is applied to the Smart Repeater unit. Ensure that the amber neon indicator next to the Series 200 male plug is on.

The first few channels of the light plugged into port 1 work, but they soon control the wrong attributes, and none of the other lights work properly.

Look at the end of the Smart Repeater unit next to the Thumbwheel Switch and check the number showing in the Seven Segment Display. Ensure that the proper mode is selected, and the system should operate properly again.

I have control of my VL6 spot luminaire, but I can't get it's lamp to strike.

Check the SixPack Chassis and ensure that there is an APS6 module in place. Assure its switch is turned on in the proper rack port. Ensure that you have the proper module type: an APS6 module as opposed to a C3 module. Also check that the proper APS6 cable is plugged into the SixPack Chassis.

I have not changed my patch or my Smart Repeater unit's addressing, but when I power up the system, some of my lights aren't responding the same way as in the past.

Check the mode of the Smart Repeater unit(s) in question. By looking at the seven-segment display to see what number is lit. If this number is not what you were expecting, reset the mode. See **Section 3.3 Smart Repeater Unit** for instructions. There is a battery in the Smart Repeater unit that will cause this device to default to Mode 4 if it fails (this problem can only be repaired in a Vari-Lite shop). If this is the case, reset the Smart Repeater unit to the proper mode, and the patch will be correct. Then, contact an Account Manager to arrange for a replacement.

The Seven Segment Display in my Smart Repeater unit does not have a number, but a letter.

The number shown in the Seven Segment Display will always denote which operating mode the Smart Repeater Unit. However, it can also be used to troubleshoot your system. Other codes that will show up and what they indicate:

d - DMX signal applied, alternates with the mode setting

n - No DMX signal appears only after the DMX O/S download.
Apply DMX signal, or turn on console.

E - Error: Invalid start address
Readdress Smart Repeater Unit. Valid addresses are 001 - 506.

C - Code: Invalid DMX start code
Check the integrity of your DMX cable -- a very rare occurrence.

Note: Shows currently programmed using DMX 4.0 Software can use Mode 5 or 6 without reprogramming. The RJ-45 jumper is no longer required in DMX 5.1.

7.4 Test Software

In every Smart Repeater unit, Test Software is available so that tests can be run to define a problem with a luminaire and assist a Vari-Lite Product Support technician in solving this problem.

To use the Test Software, set the Thumbwheel Switch at 000, plug the fixture in question into Port 1. There must be at least one fixture plugged into the Smart Repeater unit (there can be more), and there must be a fixture plugged into Port 1 for the best results. Press the buttons above and below the Thumbwheel Switch to adjust the number in the display, which in turn will allow the software to conduct the test you wish to run. To select other ports for testing, set the thumbwheel switch to 051, and use the test parameter place on the thumbwheel switch (the hundreds digit) to select the desired ports (0 for all ports, 1 for port 1, and so on through 6).

Once power is applied to the Smart Repeater unit, the reset test is performed immediately. If the Smart Repeater unit passes this initial test, the LED display will show the message [Sr uP], which means the Smart Repeater unit is properly operating. The luminaire will then begin to calibrate; after the luminaire has calibrated, you can then adjust the Thumbwheel Switch to the different codes to test particular attributes of your fixture.

Be prepared to have the results of the test with you when you call your Vari-Lite office or dealer, or to repeat the test for a Product Support technician.

Following is a list of the test codes you can apply to a Smart Repeater unit to test your fixture, as well as error codes and test parameter information. There are differences between the fixtures, so be sure to run the proper test for the luminaire in question. If you have questions regarding which test to run, or how to address the Smart Repeater unit to run the appropriate test, please call your renting office for specific instructions related to your test.

Note: Tests should not be run for more than 30 seconds, as this can further damage the fixture. Any tests run at FULL SPEED should not be run for more than 15 seconds.

To use the Test Software Tables, the hundred digit applies to the parameter section of the table, the tens and single digit applies to the test number. Errors are shown in the seven segment display.

7.4.1 VL5 Wash Family Mechanical Tests

TEST NUMBER		TEST PARAMETER		ERROR CODES/COMMENTS	
000	Start Test	9	End Stop (OPEN)	103	No Reset (PAN)
001	Pan Test	8	End Stop (CLOSED)	203	No Reset (TILT)
002	Tilt Test	7	Speed 1 (25%)	104	No Reset (PAN)
004	Diffuser Test	6	Speed 2 (35%)	204	No Reset (TILT)
005	Intensity Test (Arc Only)	5	Speed 3 (45%)		
		4	Speed 4 (55%)		
006	Blue Filter Test	3	Speed 5 (65%)		
007	Amber Filter Test	2	Speed 6 (75%)		
008	Magenta Filter Test	1	Speed 7 (85%)		
		0	Speed 8 (FULL SPEED)		
012	All Motors (synchronized)				
013	All Motors (unsynchronized)				
912	End Motor (in cal. position)				

VL5 Wash Family Default Test Programs

TEST NUMBER		TEST	FUNCTIONS
31	Pan and Tilt	701	Pan 25% Speed
		702	Tilt 25% Speed
37	VL5 Functions	704	Edge 25% Speed
		706	Blue Filter Test 25% Speed
		707	Amber Filter Test 25% Speed
		708	Magenta Filter Test 25% Speed

7.4.2 VL6 Spot Luminaire Mechanical Tests

TEST NUMBER		TEST PARAMETER		ERROR CODES/COMMENTS	
000	Start Test	9	End Stop (OPEN)	103	No Reset (PAN)
001	Pan Test	8	End Stop (CLOSED)	203	No Reset (TILT)
002	Tilt Test	7	Speed 1 (25%)	104	No Reset (PAN)
003	Beam Test	6	Speed 2 (35%)	204	No Reset (TILT)
004	Lens Test	5	Speed 3 (45%)		
		4	Speed 4 (55%)		
		3	Speed 5 (65%)		
		2	Speed 6 (75%)		
		1	Speed 7 (85%)		
		0	Speed 8 (FULL SPEED)		
005	Intensity Test	9	End Stop (OPEN)	511	Hit Sensor When Not Expecting To
		8	End Stop (CLOSED)	514	Did Not Hit Sensor When Expecting To
		7	Speed 1 (25%)		
		6	Speed 2 (35%)		
		5	Speed 3 (45%)		
		4	Speed 4 (55%)		
		3	Speed 5 (65%)		
		2	Speed 6 (75%)		
		1	Speed 7 (85%)		
		0	Speed 8 (FULL SPEED)		
006	Wheel 1 Test	9	CW 1 Frame To Sensor	611	Hit Sensor When Not Expecting To
007	Wheel 2 Test	8	CCW 1 Frame To Sensor	614	Did Not Hit Sensor When Expecting To
		7	CW 1 Frame To Sensor (Osculating)	711	Hit Sensor When Not Expecting To
		6	CCW 1 Frame To Sensor (Osculating)	714	Did Not Hit Sensor When Expecting To
		5	Continuous Frame Step		Direction Opposite of Spin
		4	Speed 1 Spin		
		3	Speed 2 Spin		
		2	Speed 3 Spin		
		1	Speed 4 Spin		
		0	Speed 5 Spin (FULL SPEED)		Spin Speeds match those available from Console
012	All Motors (synchronized)				
013	All Motors (unsynchronized)				
912	End Motor (in cal. position)				

VL6 Spot Luminaire Default Test Programs

TEST NUMBER		TEST	FUNCTIONS
31	Pan and Tilt	701	Pan 25% Speed
		702	Tilt 25% Speed
39	VL6 Functions	703	Beam 25% Speed
		705	Edge 25% Speed
		706	Wheel 1 Continuous Frame
		707	Wheel 2 Continuous Frame

7.4.3 VL6B Spot Luminaire Mechanical Tests

TEST NUMBER		TEST PARAMETER		ERROR CODES/COMMENTS	
000	Start Test	9	End Stop (OPEN)	103	No Reset (PAN)
001	Pan Test	8	End Stop (CLOSED)	203	No Reset (TILT)
002	Tilt Test	7	Speed 1 (25%)	104	No Reset (PAN)
003	Beam Test	6	Speed 2 (35%)	204	No Reset (TILT)
		5	Speed 3 (45%)		
		4	Speed 4 (55%)		
		3	Speed 5 (65%)		
		2	Speed 6 (75%)		
		1	Speed 7 (85%)		
		0	Speed 8 (FULL SPEED)		
004	Lens Test	7	All move to front EOT, Lens 1 cycles full travel (100%)		
		6	Lens 1 move to rear EOT, Lens 3 move to front EOT, Lens 2 cycles full travel (33%)		
		5	Lens 1 move to rear EOT, Lens 3 move to front EOT, Lens 2 cycles full travel (66%)		
		4	Lens 1 move to rear EOT, Lens 3 move to front EOT, Lens 2 cycles full travel (100%)		
		3	All lenses move to rear EOT, Lens 3 cycles full travel (33%)		
		2	All lenses move to rear EOT, Lens 3 cycles full travel (66%)		
		1	All lenses move to rear EOT, Lens 3 cycles full travel (100%)		
		0	All synchronous (100%)		
005	Intensity Test	9	End Stop (OPEN)	511	Hit Sensor When Not Expecting To
		8	End Stop (CLOSED)	514	Did Not Hit Sensor When Expecting To
		7	Speed 1 (25%)		
		6	Speed 2 (35%)		
		5	Speed 3 (45%)		
		4	Speed 4 (55%)		
		3	Speed 5 (65%)		
		2	Speed 6 (75%)		
		1	Speed 7 (85%)		
		0	Speed 8 (FULL SPEED)		

7.4.3 Cont. VL6B Spot Luminaire Mechanical Tests

TEST NUMBER		TEST PARAMETER		ERROR CODES/COMMENTS	
006	Wheel 1 Test	9	CW 1 Frame To Sensor	611	Hit Sensor When Not Expecting To
007	Wheel 2 Test	8	CCW 1 Frame To Sensor	614	Did Not Hit Sensor When Expecting To
		7	CW 1 Frame To Sensor (Osculating)	711	Hit Sensor When Not Expecting To
		6	CCW 1 Frame To Sensor (Osculating)	714	Did Not Hit Sensor When Expecting To
		5	Continuous Frame Step		Direction Opposite of Spin
		4	Speed 1 Spin		
		3	Speed 2 Spin		
		2	Speed 3 Spin		
		1	Speed 4 Spin		
		0	Speed 5 Spin (Full Speed)		Spin Speeds match those available from Console
009	Rotating Gobos	9	Wheel position is open (no gobo)		
		8	Gobo position 6		
		7	Cycle from wheel position 0 to position 3 CW, from position 3 to position 0 CCW repeatedly. Pause briefly on position 0 and 3		
		6	Cycle from wheel position 0 to position 2 CCW, from position 2 to position 0 CW repeatedly. Pause briefly on position 0 and 2		
		5	Continuous change CW to next gobo position on wheel (from 2 to 3, 5 to 0) Gobos on wheels do not rotate. Pause briefly on each gobo		
		4	Cycle from wheel position 0 to position 2 CCW, from position 2 to position 0 CW repeatedly. Pause briefly on position 0 and 2 (25%)		
		3	Cycle from wheel position 0 to position 2 CCW, from position 2 to position 0 CW repeatedly. Pause briefly on position 0 and 2 (45%)		
		2	Cycle from wheel position 0 to position 2 CCW, from position 2 to position 0 CW repeatedly. Pause briefly on position 0 and 2 (65%)		
		1	Cycle from wheel position 0 to position 2 CCW, from position 2 to position 0 CW repeatedly. Pause briefly on position 0 and 2 (85%)		

7.4.3 Cont. VL6B Spot Luminaire Mechanical Tests

TEST NUMBER		TEST PARAMETER		ERROR CODES/COMMENTS	
		0	Cycle from wheel position 0 to position 2 CCW, from position 2 to position 0 CW repeatedly. Pause briefly on position 0 and 2 (100%)		
010	Index	9	Cycle from index 0 to index 30 CW, from index 30 to index 0 CCW repeatedly. Pause briefly on index 0 and 30 (85%)		
		8	Cycle from index 0 to index 5 CCW, from index 5 to index 0 CW repeatedly. Pause briefly on index 0 and 5		
		7	Cycle from index 0 to index 3 CW, from index 3 to index 0 CCW repeatedly. Pause briefly on index 0 and 3		
		6	Cycle from index 0 to index 6 CW, from index 6 to index 0 CCW repeatedly. Pause briefly on index 0 and 6		
		5	Continous Stop/Start through 14 different index positions		
		4	Continuous Rotation Speed 25%		
		3	Continuous Rotation Speed 45%		
		2	Continuous Rotation Speed 65%		
		1	Continuous Rotation Speed 85%		
		0	Continuous Rotation Speed 100%		
012	All Motors (synchronized)				
013	All Motors (unsynchronized)				
912	End Motor (in cal. position)				

VL6B Spot Luminaire Default Test Programs

TEST NUMBER		TEST	FUNCTIONS
31	Pan and Tilt	701	Pan 25% Speed
		702	Tilt 25% Speed
39	VL6B Functions	703	Beam 25% Speed
		705	Edge 25% Speed
		706	Wheel 1 Continuous Frame
		707	Wheel 2 Continuous Frame
		709	Rotating Gobos

7.4.4 VL7 Spot Luminaire Mechanical Tests

TEST NUMBER		TEST PARAMETER		ERROR CODES/COMMENTS	
000	All Stop			103	No Reset (PAN)
001	Pan Test	9	End Stop (65%) (CLSD)	203	No Reset (TILT)
002	Tilt Test	8	End Stop (65%) (OPEN)	104	No Reset (PAN)
003	Beam Test	7	Speed 1 (25%)	204	No Reset (TILT)
		6	Speed 2 (35%)		
		5	Speed 3 (45%)		
		4	Speed 4 (55%)		
		3	Speed 5 (65%)		
		2	Speed 6 (75%)		
		1	Speed 7 (85%)		
		0	Speed 8 (FULL SPEED)		
004	Lens Test	7	All move to front EOT, Lens 1 cycles full travel (100%)		
		6	Lens 1 move to rear EOT, Lens 3 move to front EOT, Lens 2 cycles full travel (33%)		
		5	Lens 1 move to rear EOT, Lens 3 move to front EOT, Lens 2 cycles full travel (66%)		
		4	Lens 1 move to rear EOT, Lens 3 move to front EOT, Lens 2 cycles full travel (100%)		
		3	All lenses move to rear EOT, Lens 3 cycles full travel (33%)		
		2	All lenses move to rear EOT, Lens 3 cycles full travel (66%)		
		1	All lenses move to rear EOT, Lens 3 cycles full travel (100%)		
		0	All synchronous (100%)		
005	Intensity Test	9	End Stop (65%) (CLSD)		
		8	End Stop (65%) (OPEN)		
		7	Speed 1 (25%)		
		6	Speed 2 (35%)		
		5	Speed 3 (45%)		
		4	Speed 4 (55%)		
		3	Speed 5 (65%)		
		2	Speed 6 (75%)		
		1	Speed 7 (85%)		
		0	Speed 8 (Full Speed)		

7.4.4 Cont. VL7 Spot Luminaire Mechanical Tests

TEST NUMBER		TEST PARAMETER		ERROR CODES/COMMENTS	
006	Color Plate 1	9	Plate moves to open X & Y (100%)		
007	Color Plate 2	8	Plate cycles full travel (25%) along Y vector		
		7	Plate cycles full travel (50%) along Y vector		
		6	Plate cycles full travel (75%) along Y vector		
		5	Plate cycles full travel (100%) along Y vector		
		4	Plate cycles full travel (25%) along X vector		
		3	Plate cycles full travel (50%) along X vector		
		2	Plate cycles full travel (75%) along X vector		
		1	Plate cycles full travel (100%) along X vector		
		0	Plate moves from X & Y EOT to opposite X & Y EOT synchronous, repeatedly (100%)		
008	Fixed Gobo	9	Cycle from wheel position 0 to position 1 CW, from position 1 to position 0 CCW repeatedly. Pause briefly on position 0 and 1		
		8	Cycle from wheel position 0 to position 11 CCW, from position 11 to position 0 CW repeatedly. Pause briefly on position 0 and 11		
		7	Cycle from wheel position 0 to position 6 CW, from position 6 to position 0 CCW repeatedly. Pause briefly on position 0 and 6		
		6	Cycle from wheel position 0 to position 6 CCW, from position 6 to position 0 CW repeatedly. Pause briefly on position 0 and 6		
		5	Continuous wheel position CW to next gobo position on wheel (from 2 to 3, 11 to 0) Pause briefly on each gobo		
		4	Wheel spins CW (20%)		
		3	Wheel spins CW (40%)		
		2	Wheel spins CW (60%)		

7.4.4 Cont. VL7 Spot Luminaire Mechanical Tests

TEST NUMBER		TEST PARAMETER		ERROR CODES/COMMENTS	
		1	Wheel spins CW (80%)		
		0	Wheel spins CW (100%)		
009	Rotating Gobos	9	Cycle from wheel position 0 to position 1 CW, from position 1 to position 0 CCW repeatedly. Pause briefly on position 0 and 1		
		8	Cycle from wheel position 0 to position 5 CCW, from position 5 to position 0 CW repeatedly. Pause briefly on position 0 and 5		
		7	Cycle from wheel position 0 to position 3 CW, from position 3 to position 0 CCW repeatedly. Pause briefly on position 0 and 3		
		6	Cycle from wheel position 0 to position 6 CCW, from position 6 to position 0 CW repeatedly. Pause briefly on position 0 and 6		
		5	Continuous wheel position CW to next gobo position on wheel (from 2 to 3, 5 to 0) Gobos on wheels do not rotate. Pause briefly on each gobo		
		4	Cycle gobos between orientation 0˚ & 180˚ repeatedly. Wheel does not move. Pause briefly at 0˚ & 180˚		
		3	Spin gobos CW (100%) wheel does not move		
		2	Spin gobos CW (50%) wheel does not move		
		1	Spin gobos CW (25%) wheel does not move		
		0	Spin gobos CW (100%) wheel does not move		
010	Strobe Test	9	Strobe to EOT Stop (65%) (CLSD)		
		8	Strobe to middle position between EOT Stop (65%) (OPEN)		
		7	Strobe open to closed stop repeatedly (25%) (i.e. cycling)		
		6	Cycling (35%)		
		5	Cycling (45%)		

7.4.4 Cont. VL7 Spot Luminaire Mechanical Tests

TEST NUMBER		TEST PARAMETER		ERROR CODES/COMMENTS	
		4	Cycling (55%)		
		3	Cycling (65%)		
		2	Cycling (75%)		
		1	Cycling (85%)		
		0	Cycling (FULL SPEED)		
013	All Async		All tests above will run asynchronously. All motors will reach respective EOT stops (if applicable) and begin motion to opposite EOT stops at each motor' earliest opportunity. Motion will not be coordinated between motors.		
021	Sensors	9	Monitor Lens 3 Sensor		Flashing display indicates sensor not hit. Solid display indicates sensor hit.
		8	Monitor Lens 2 Sensor		
		7	Monitor Lens 1 Sensor		
		6	Monitor Strobe Sensor		
		5	Monitor Fixed Gobo Sensor		
		4	Monitor Rotating Gobo Wheel, Wheel position Sensor and Gobo Orientation Sensor		
		3	Monitor Plate 2 Saturation Sensor		
		2	Monitor Plate 2 Color Sensor		
		1	Monitor Plate 1 Saturation Sensor		
		0	Monitor Plate 1 Color Sensor		
022/023	Pan/Tilt Encoders	9	Display current most significant digit (Xxxx) of the reported encoder value. Repeatedly monitored.		
		8	Display current most significant digit (Xxxx) of the reported encoder value. Repeatedly monitored.		
		7	Display current most significant digit (Xxxx) of the reported encoder value. Repeatedly monitored.		
		6	Display current most significant digit (Xxxx) of the reported encoder value. Repeatedly monitored.		

7.4.4 Cont. VL7 Spot Luminaire Mechanical Tests

TEST NUMBER		TEST PARAMETER		ERROR CODES/COMMENTS	
		0	Display scrolling snap-shot of each digit of the reported encoder. Repeatedly monitored.		
024	Form & Function	0	Display the form and function value of the luminaire. For the VL7, Py=F10 should be reported where Y is the luminaire' port number.		

VL7 Spot Luminaire Default Test Programs

TEST NUMBER		TEST	FUNCTIONS
31	Pan and Tilt	701	Pan 25% Speed
		702	Tilt 25% Speed
39	VL7 Functions	703	Beam 25% Speed
		705	Edge 25% Speed
		709	Rotating Gobos
		506	Wheel 1 Continuous Frame
		507	Wheel 2 Continuous Frame
003	Beam Test		
004	Lens Test		
005	Intensity Test		
006	Plate 1 Test		
007	Plate 2 Test		
008	Fixed Gobo Test		
009	Rotating Test		
010	Strobe Test		

7.4.5 VL7B Spot Luminaire Mechanical Tests

TEST NUMBER		TEST PARAMETER		ERROR CODES/COMMENTS	
000	All Stop			103	No Reset (PAN)
001	Pan Test	9	End Stop (65%) (CLSD)	203	No Reset (TILT)
002	Tilt Test	8	End Stop (65%) (OPEN)	104	No Reset (PAN)
003	Beam Test		N/A		
004	Lens Test	7	All move to front EOT, Lens 1 cycles full travel (100%)		
		6	Lens 1 move to rear EOT, Lens 3 move to front EOT, Lens 2 cycles full travel (33%)		
		5	Lens 1 move to rear EOT, Lens 3 move to front EOT, Lens 2 cycles full travel (66%)		
		4	Lens 1 move to rear EOT, Lens 3 move to front EOT, Lens 2 cycles full travel (100%)		
		3	All lenses move to rear EOT, Lens 3 cycles full travel (33%)		
		2	All lenses move to rear EOT, Lens 3 cycles full travel (66%)		
		1	All lenses move to rear EOT, Lens 3 cycles full travel (100%)		
		0	All synchronous (100%)		
005	Intensity Test	9	End Stop (65%) (CLSD)		
		8	End Stop (65%) (OPEN)		
		7	Speed 1 (25%)		
		6	Speed 2 (35%)		
		5	Speed 3 (45%)		
		4	Speed 4 (55%)		
		3	Speed 5 (65%)		
		2	Speed 6 (75%)		
		1	Speed 7 (85%)		
		0	Speed 8 (Full Speed)		
006	Color Plate 1	9	Plate moves to open X & Y (100%) Test Type 67D		
007	Color Plate 2	8	Plate cycles full travel (25%) along Y vector		
		7	Plate cycles full travel (50%) along Y vector		
		6	Plate cycles full travel (75%) along Y vector		
		5	Plate cycles full travel (100%) along Y vector		

7.4.5 Cont. VL7B Spot Luminaire Mechanical Tests

TEST NUMBER		TEST PARAMETER		ERROR CODES/COMMENTS	
		4	Plate cycles full travel (25%) along X vector		
		3	Plate cycles full travel (50%) along X vector		
		2	Plate cycles full travel (75%) along X vector		
		1	Plate cycles full travel (100%) along X vector		
		0	Plate moves from X & Y EOT to opposite X & Y EOT synchronous, repeatedly (100%)		
008	Fixed Gobo		N/A		
009	Rotating Gobos	9	Cycle from wheel position 0 to position 1 CW, from position 1 to position 0 CCW repeatedly. Pause briefly on position 0 and 1		
		8	Cycle from wheel position 0 to position 5 CCW, from position 5 to position 0 CW repeatedly. Pause briefly on position 0 and 5		
		7	Cycle from wheel position 0 to position 3 CW, from position 3 to position 0 CCW repeatedly. Pause briefly on position 0 and 3		
		6	Cycle from wheel position 0 to position 6 CCW, from position 6 to position 0 CW repeatedly. Pause briefly on position 0 and 6		
		5	Continuous wheel position CW to next gobo position on wheel (from 2 to 3, 5 to 0) Gobos on wheels do not rotate. Pause briefly on each gobo		
		4	Cycle gobos between orientation 0˚ & 180˚ repeatedly. Wheel does not move. Pause briefly at 0˚ & 180˚		
		3	Spin gobos CW (100%) wheel does not move		
		2	Spin gobos CW (50%) wheel does not move		
		1	Spin gobos CW (25%) wheel does not move		
		0	Spin gobos CW (100%) wheel does not move		

7.4.5 Cont. VL7B Spot Luminaire Mechanical Tests

TEST NUMBER		TEST PARAMETER		ERROR CODES/COMMENTS	
010	Strobe Test	9	Strobe to EOT Stop (65%) (CLSD)		
		8	Strobe to middle position between EOT Stop (65%) (OPEN)		
		7	Strobe open to closed stop repeatedly (25%) (i.e. cycling)		
		6	Cycling (35%)		
		5	Cycling (45%)		
		4	Cycling (55%)		
		3	Cycling (65%)		
		2	Cycling (75%)		
		1	Cycling (85%)		
		0	Cycling (FULL SPEED)		
013	All Async		All tests above will run asynchronously. All motors will reach respective EOT stops (if applicable) and begin motion to opposite EOT stops at each motor' earliest opportunity. Motion will not be coordinated between motors.		Flashing display indicates sensor not hit. Solid display indicates sensor hit.
021	Sensors	9	Monitor Lens 3 Sensor		
		8	Monitor Lens 2 Sensor		
		7	Monitor Lens 1 Sensor		
		6	Monitor Strobe Sensor		
		5	Monitor Fixed Gobo Sensor		
		4	Monitor Rotating Gobo Wheel, Wheel position Sensor and Gobo Orientation Sensor		
		3	Monitor Plate 2 Saturation Sensor		
		2	Monitor Plate 2 Color Sensor		
		1	Monitor Plate 1 Saturation Sensor		
		0	Monitor Plate 1 Color Sensor		
022/023	Pan/Tilt Encoders	9	Display current most significant digit (Xxxx) of the reported encoder value. Repeatedly monitored.		
		8	Display current most significant digit (Xxxx) of the reported encoder value. Repeatedly monitored.		

7.4.5 Cont. VL7B Spot Luminaire Mechanical Tests

TEST NUMBER		TEST PARAMETER		ERROR CODES/COMMENTS	
	Pan/Tilt Encoders	7	Display current most significant digit (Xxxx) of the reported encoder value. Repeatedly monitored.		
		6	Display current most significant digit (Xxxx) of the reported encoder value. Repeatedly monitored.		
		0	Display scrolling snap-shot of each digit of the reported encoder. Repeatedly monitored.		
024	Form & Function	0	Display the form and function value of the luminaire. For the VL7, Py=F10 should be reported where Y is the luminaire' port number.		
*071-079	Shutter System Motor Test (Motors 1-9)	0	Full speed (100%) framing from open stop to closed stop repeatedly		Shutter Motor Tests
		1	motor cycling (85%)	071	Operates Motor 1
		2	motor cycling (75%)	072	Operates Motor 2
		3	motor cycling (65%)	073	Operates Motor 3
		4	motor cycling (55%)	074	Operates Motor 4
		5	motor cycling (45%)	075	Operates Motor 5
		6	motor cycling (35%)	076	Operates Motor 6
		7	motor cycling (25%)	077	Operates Motor 7
		8	End stop motor cycling (65%) (Open)	078	Operates Motor 8
		9	End stop motor cycling (65%) (Clsd)	079	Operates Motor 9

* Motors 1-8 actuate the framing blades and Motor 9 rotates the framing device.

VL7B Spot Luminaire Default Test Programs

TEST NUMBER		TEST	FUNCTIONS
31	Pan and Tilt	701	Pan 25% Speed
		702	Tilt 25% Speed
39	VL7B Functions	703	Beam 25% Speed
		705	Edge 25% Speed
		709	Rotating Gobos
		506	Wheel 1 Continuous Frame
		507	Wheel 2 Continuous Frame
003	Beam Test	N/A	
004	Lens Test		
005	Intensity Test		
006	Plate 1 Test		
007	Plate 2 Test		
008	Fixed Gobo Test	N/A	
009	Rotating Test		
010	Strobe Test		

Chapter 8. Appendix 1 - Glossary Terms

Address - A numerical “name” given to a device on a DMX line indicating which of 512 possible channels it will respond to.

Align (lamp) - The process of adjusting the lamp within the reflector to obtain the desired output quality of the beam.

APS6 Module - The lamp power supply (ballast) for the arc lamps found in the VL6 and VL7 spot luminaires, and in the VL5Arc wash luminaire.

APS6 Trunk Cable - Multi-conductor cable used to provide six circuits of arc lamp power to VARI✳LITE Series 300 luminaires. Differs from industry standard six circuit Socopex cable by using pin 19 as a shield to eliminate RF noise, which can interfere with sound systems. Can be used with incandescent lamps.

Arc Lamp - A type of lamp which creates light by forming an arc of electricity. Brightness is achieved by including gasses and metals within the envelope of the lamp which dissolve and give off a bright light. Arc lamps must be dimmed mechanically because electrical dimming will extinguish the arc. Arc lamps used in Series 300 luminaires will not strike when hot.

Attribute - An individual controllable aspect of a luminaire: pan, tilt, color, etc. Also known as “parameter.”

Console Timing - Time value in seconds or minutes applied to an entire cue.

C3 Dimmer - The VARI✳LITE current sensing dimmer that can be installed in a SixPack Chassis to control the intensity of a VL5 or VL5B wash luminaire.

Dimmer - Device used to control the relative output (or intensity) of an incandescent lamp.

DMX - The universally accepted lighting control protocol in the entertainment industry. A console uses this protocol to control specific devices in a lighting system. A DMX512 data channel is eight bits of absolute parameter data. A DMX512 data packet is a group of 512 data channels, over a value range of 256 steps.

DMX Cable - Industry standard cable consists of two twisted pair and a shield, and 5-pin XLR style connectors. The pin out is: pin 1 = common (shield), pin 2 = data -, pin 3 = data +. The second pair (pins 4 & 5) may be used for a secondary data link; in VARI✳LITE equipment, these pins are not used.

DMX Power Pack - The DMX Power Pack (DPP) is a portable electronics chassis that provides lamp power and control to Series 300 luminaires.

DMX Universe - A group of up to 512 DMX channels. Consoles may have more than one universe, usually labeled in groups of 512.

Epic Connector - A six-pin, three-phase 35 amp connector found on 8/5 wire used to provide power to a SixPack Chassis. Also found on the back of a Mod Rack.

Fan-In - (Break-In) 6 male plugs to female multicore connector. In the case of Series 300 equipment, a Socapex connector.

Fan-Out - (Break-Out) A male multicore connector to 6 female plugs. In the case of Series 300 equipment, a Socapex connector.

Feeder - In the case of Series 300 equipment, 2/0 double-insulated wire, rated at 225 amps, with 4\0 Cam-Lok connectors on either end, color coded by phase, neutral and ground.

Fixture Orientation - Based on the direction the pigtail points as it exits the fixture.

Flipped Focus - When one or more fixtures inadvertently move differently from others in the system.

Gobo - A pattern (template) used to create backgrounds or texture when projected on to scenery or cycloramas, or to create the illusion of natural elements such as fire, windows or tree leaves.

Home Position - Pan and Tilt values at 50%. Also called “Zero Position” or a “50/50” cue or group.

Hubbell Connector - A five-pin, three-phase connector found on 8/5 wire, used to provide power to SixPack Chassis, when used with the proper Epic to Hubbell adapter.

Intensity - A value placed on the relative brightness of a lighting fixture; 100% is considered “full”, and 0% is considered “out”.

Lamp Cable - Vari-Lite supplied cable that extends the fixture pigtail to a Smart Repeater unit.

Luminaire Calibration - The process of a luminaire finding its end stops for all parameters.

Mini-Stepping - Allows for smoother movement of color and gobo wheels in a VL6 spot luminaire.

Mode - Software contained within the Smart Repeater unit allowing for different control options for luminaires.

Modular (Mod) Rack - A power distribution and storage rack for SixPack Chassis. The Mod Rack is fitted for 200A Cam-Lok input, with six Epic connectors for individual outputs for up to four rack-mounted chassis and up to two auxiliary chassis. The Mod Rack also has a space for one SPC-36 SixPack controller for control of the modules within the chassis.

Output Port - One of the six plugs on the long side of a Smart Repeater unit, with port one being closest to the Socapex connector.

Palette - Term for groups of groups; i.e. all the color groups would be considered the Color Palette, all the beam groups would be the Beam Palette, etc.

Pan - The 360˚ movement of the luminaire around the axis of the yoke.

Parameter - An individual controllable aspect of a luminaire: pan, tilt, color, etc. Also known as “attribute.”

Part Cue - Basically a “cue within a cue”. A portion of a cue with a time applied that is different than the cue time.

Patch - The act of assigning a DMX channel to a control channel on a console.

Pigtail - Cable found at the top of a Series 300 fixture.

Signal - Control protocol from a lighting console or interface.

SixPack Chassis - Case used for lamp power distribution. Each chassis can contain up to six modules - APS6 and/or C3 in any combination. Each slot in the chassis corresponds to an output port on the Smart Repeater unit. The SixPack Chassis connects to the Smart Repeater unit through an APS Cable or standard Socopex cable (if no APS6 modules are used).

Smart Repeater - The Smart Repeater unit is the hub for up to six Series 300 luminaires. The Smart Repeater unit s also an interface between the control system and the luminaires. It consolidates the three things necessary to run Series 300 luminaires into one lamp cable: Control Signal, Lamp power and Motor/Control power.

Socapex Cable - Industry standard multicore cable is used to distribute lamp power to luminaires. It is often created using 19-pin Socopex or Veam connectors and 12/18 cable for six 20A circuits.

Splitter (Isolator) - Device used to optically isolate and split a DMX signal. ***Note:*** A DMX “two-fer” cannot be used to divide a signal.

Tails - In the case of Series 300 equipment, 2/0 double-insulated wire, rated at 225 amps, with 4\0 Cam-Lok connectors on one end color coded by phase, neutral and ground and bare wire on the other, or 8/5 multicore wire with a female connector (Hubbell or Epic) on one end, and bare wire on the other.

Terminate/Termination - Termination refers to the dampening of DMX signal at the end of the transmission line. Termination is created by placing a 100 ohm resistor between pins 2 and 3 of the DMX line. Often, there is a switch on DMX devices to do this internally. If not, a terminator is provided in the form of an XLR connector with the proper resistor between pins 2 and 3 to be placed in the DMX Thru port on the device.

Test Software - Software resident in the Smart Repeater unit that allows for troubleshooting of a Series 300 luminaire.

Three-Phase Power - In order to manufacture electricity efficiently, it is created in what is known as three "phases". In other words, in its creation, the sine wave of alternating current are offset by 120˚. The VARI✻LITE system runs on three-phase power, as indicated by the five Cam-Lok connectors on the Mod Rack - Phase X, Phase Y, Phase Z, Neutral and Ground. Each phase in a 200A feed can support 200A of equipment. To adequately power the same amount of equipment on a single phase, you would need a 600A feed.

Thumbwheel Switch - Three digit switching device used to set the range of channels a particular Smart Repeater unit or other Series 300 hardware device looks at for control information. Also used to set the operating mode of a Smart Repeater unit.

Tilt - The movement of the luminaire around the axis of the tilt tube; 270˚ for the VL5 wash family and the VL6 and VL7 spot luminaires, and continuous in either direction for the VLM Moving Mirror.

Time - Control of the duration of the change of the variable parameters of VARI✻LITE automated luminaires and other devices in a lighting system.

Timing Channel - A Timing Channel is used in lieu of cue fade rate to determine the time it will take a luminaire to move from one setting to another. For example, a cue in which a luminaire pans from one side of stage to the other may look "steppy" if cue fade rate is used, because of the nature of the DMX signal. To overcome this, a timing channel causes the Smart Repeater unit and luminaire to calculate the move in time, effectively smoothing out the movement. To operate properly, the new position and timing channel levels need to be sent to the Smart Repeater in a zero count, (an instant change).

Zero Position - Pan and Tilt values at 50%. Also called “Home Position” or a “50/50” cue or group.

8-Bit DMX - The universally accepted lighting control protocol in the entertainment industry. A console uses this protocol to control specific devices in a lighting system. A DMX512 channel packet is eight bits of absolute parameter data. 8-bit refers to the resolution of the signal: 256 step resolution, providing channel values from 0 through 255. A DMX512 data packet is a group of 512 data channels.

16-Bit DMX - To smooth out the movement of automated luminaires, the industry has adopted 16-bit DMX. This is not a change to the DMX specification, rather a change in the way luminaires and consoles treat DMX information. In practice, 16-bit DMX adds a DMX channel each to pan and tilt - pan coarse, pan fine, tilt coarse, tilt fine, instead of just pan and tilt. The console and luminaire combine these levels and increase the resolution of pan and tilt from 256 steps to a theoretical maximum 65, 536 steps at the console level, resulting in the ability to position the luminaire more accurately.

8.1 Locations

Should you experience difficulty operating your Series 300 system, please call your dealer, Vari-Lite Distributor or the nearest VLPS office and ask for field service:

ATLANTA	TEL (+1) 404.603.8200	FAX (+1) 404.603.9011
CHICAGO	TEL (+1) 847.806.9800	FAX (+1) 847.806.9899
DALLAS	TEL (+1) 214.819.3275	FAX (+1) 214.688.0972
LAS VEGAS	TEL (+1) 702.795.4766	FAX (+1) 702.795.4768
LOS ANGELES	TEL (+1) 818.507.0700	FAX (+1) 818.507.0800
NASHVILLE	TEL (+1) 615.834.3190	FAX (+1) 615.834.3192
NEW YORK	TEL (+1) 212.262.8577	FAX (+1) 212.262.0065
ORLANDO	TEL (+1) 407.351.9800	FAX (+1) 407.351.9893
AMSTERDAM	TEL (+31) 30.242.82.60	FAX (+31) 30.242.82.69
BRUSSELS	TEL (+32) 16.61.71.10	FAX (+32) 16.60.88.61
DUBAI	TEL (+971) 4.473.788	FAX (+971) 4.474.818
LONDON	TEL (+44) 181.575.6666	FAX (+44) 181.575.0424
MADRID	TEL (+34) 91.616.6422	FAX (+34) 91.616.6425
PARIS	TEL (+33) 1.49.21.21.90	FAX (+33) 1.49.21.21.99
STOCKHOLM	TEL (+46) 8.726.8540	FAX (+46) 8.726.1885
HONG KONG	TEL (+852) 2711.0700	FAX (+852) 2711.0001
TOKYO	TEL (+813) 3446.0041	FAX (+813) 3440.1510

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Addendum A. Series 200™ DMX Control

This addendum adds Series 200 DMX control information. This information will be properly incorporated into the manual in the next revision.

VL2C™ & VL4™ Luminaire DMX Control

Overview

With the introduction of the DMX200 Interface unit, VL2C™ and VL4™ luminaires can now be controlled using DMX-512 protocol. The DMX200 interface unit works in conjunction with the ACS Rack and a DMX-512 control device to provide DMX200 data and power to Repeaters and luminaires. Use the information in the Operation section to configure channel assignments and DMX ranges necessary to control VL2C and VL4 luminaires.

Operation

Thumbwheel Settings

The luminaire thumbwheel setting determines the offset of the first channel for that luminaire within its universe. Luminaires with thumbwheel settings 1-497 (498 for VL2 luminaires) are controlled by universe 1 and luminaires with thumbwheel settings 501-993 are controlled by universe 2. For example, a VL4 luminaires with thumbwheel setting 21 would be controlled by DMX channels 21-35 of universe 1, while a VL2C luminaires with thumbwheel setting 514 would be controlled by DMX channels 14-27 of universe 2.

VL2C™ Luminaire

Each VL2C luminaire requires 14 DMX channels for control. The luminaire's starting address is determined by its thumbwheel setting. Use Tables 1-3 to determine channel assignments for the luminaire parameters and DMX values for positioning color wheels 1 and 2 and the gobo wheel.

Table 1: VL2C Luminaire Channel Assignments

Channel	Parameter
1	Intensity
2	Pan Hi
3	Pan Lo
4	Tilt Hi
5	Tilt Lo
6	Wheel 1
7	Wheel 2
8	Beam
9	Edge
10	Gobo Wheel
11	*Focus Time
12	*Edge Time
13	*Beam Time
14	**Reset, Start and Douse

* Refer to "Timing Channels" section on page 4.
** Refer to "Reset Channel" section on page 4.

Table 2: VL2C Luminaire DMX Values for Color Wheels 1 & 2

Pos.	Color Wheel 1	Color Wheel 2	DMX Value
1	Open (no color)	Open (no color)	0-15
2	No Color Straw	Magenta	16-31
3	Color Correction	Light Pink	32-47
4	Lavender	Pink	48-63
5	Deep Red	Pale Lavender	64-79
6	Ultra Violet	Red	80-95
7	Dark Violet	Orange Red	96-111
8	Violet Blue	Orange	112-127
9	Blue Violet	Amber	128-143
10	Royal Blue	Yellow	144-159
11	Blue	Greenish Yellow	160-175
12	Turquoise Blue	Lt. Yellow Green	176-191
13	Medium Blue	Pale Yellow Green	192-207
14	Pale Med. Blue	Straw	208-223
15	Pale Blue	Light Straw	224-239
16	No Color Blue	Pale Straw	240-255

Table 3: VL2C Luminaire DMX Values for Gobo Control

Gobo	DMX Value
1 (open)	0-24
2	25-49
3	50-74
4	75-99
5	100-124
6	125-149
7	150-174
8	175-199
9	200-224
10	225-255

VL4™ Luminaire

Each VL4 luminaire requires 15 DMX channels for control. The luminaire's starting address is determined by its thumbwheel setting. Channel assignments are as follows:

Channel	Parameter
1	Intensity
2	Pan Hi
3	Pan Lo
4	Tilt Hi
5	Tilt Lo
6	Blue
7	Amber
8	Magenta
9	Edge
10	Beam
11	Shutter
12	Focus Time
13	Color Time
14	Beam Time
15	Reset, Start and Douse

Reset Channel

The reset channel (14 for VL2C luminaire, 15 for VL4 luminaire) allows the operator to reset the luminaire, start the lamp, or douse the lamp. To perform the desired action, set the reset channel to the appropriate value, wait three seconds, then return the value to zero. The actions, and control values are as follows:

Action	DMX Value
Reset	84
Douse	168
Start	252
zero	0

Timing Channels

Timing channel functionality for VL2C and VL4 luminaires is the same as the functionality for Series 300™ fixtures. Refer to section 6.3 of the DMX Guide 5.1 manual for more information.

VARI*LITE Color System Parameters

Note: In the following table the VL2C luminaire color system information is given by wheel 1 and wheel 2 positions. Use "Table 2:" on page 3 to find the appropriate DMX value range for the listed wheel positions.

Color Name	VL No.	Similar To	VL2C (Wh 1/Wh 2)	VL4 (DMX Values)		
				Blue (6)	Amber (7)	Magenta (8)
Pink Tint	101	Lux 55	N/A	254	255	198
Bastard Amber	103	Lux 02	N/A	254	151	166
GAM Bastard Amber	104	GAM 325	N/A	255	158	163
Warm Bastard Amber	105	Lee 162	N/A	255	162	173
Pale Golden Amber	107	Lux 09	N/A	255	141	179
Light Amber	110	Lux 16, Lee 204	N/A	255	128	165
Light Flame	112	Lux 17	N/A	255	126	147
Medium Bastard Amber	115	Lux 04	N/A	255	126	147
Dark Bastard Amber	116	Lux 03	N/A	N/A	N/A	N/A
Warm Amber	122	Lee 176, Lux 01	N/A	255	141	152
Peach	125	GAM 320		255	122	135
Flesh Pink	131	Lux 34	N/A	255	160	132
Dark Pink	134	Lee 111	N/A	255	158	118
Medium Salmon	136	Lux 32	N/A	255	128	108
Salmon	138	Lux 41	N/A	254	104	90
Brite Pink	141	Lee 128	N/A	255	126	75
Dark Peach	145		N/A	255	128	87
Lee Magenta	149	Lee 113	N/A	255	111	53
Dark Salmon	151		N/A	255	97	48
Deep Salmon	155		N/A	255	105	34
Dark Red	161		4/4	N/A	N/A	N/A
Medium Red	164	Lux 27	4/8	255	0	0

Color Name	VL No.	Similar To	VL2C (Wh 1/Wh 2)	VL4 (DMX Values)		
				Blue (6)	Amber (7)	Magenta (8)
Primary Red	168	Lee 106	0/5	255	0	29
Dark Orange	173	Lux 26	0/5	255	0	46
Light Red	177	GAM 235	N/A	255	106	44
Dark Orange	181		2/6	255	90	46
Orange	183	Lux 19, Lee 164	15/6	255	0	78
Medium Amber	187	Lux 22	15/6	255	0	98
Deep Golden Amber	201	GAM 345	15/7	255	47	109
Canary	205	Lux 21	2/8	255	62	173
Light Amber	208		0/8	255	67	225
Lee Orange	212	Lee 105	2/9	255	98	255
Chrome Orange	214	Lux 15, Lee 179	15/8	255	104	198
Bright Yellow	219		1/9	255	106	255
Dark Straw	221		0/9	255	100	255
Deep Amber	223	Lee 104	0/9	254	111	255
Light Yellow	225	Lee 101	2/11	N/A	N/A	N/A
Straw	237	Lux 12	1/10	N/A	N/A	N/A
Light Straw	239		2/15	255	135	255
No Color Green	245	Lee 213, Lee 202	0/15	151	128	255
Pale Yellow-Green	251		14/12	N/A	N/A	N/A
Fern Green	254	Lee 122	13/14	0	137	255
Yellow-Green	256		10/9	85	87	255
Lime Green	257	Lee 139	11/11	95	107	255
Primary Green	259		10/11	85	116	255
Light Green	261		9/11	98	143	255
Moss Green	263		9/12	N/A	N/A	N/A
Lt. Blue Green	267		11/14	34	130	255
Kelly Green	268	Lux 94	12/14	48	126	255
Dark Green	270	Lee 124	10/13	96	117	255
Fluorescent Green	273		9/13	N/A	N/A	N/A
Dark Fluor. Green	275		8/15	N/A	N/A	N/A
Blue-Grass Green	281	GAM 690, GAM 440	10/14	N/A	N/A	N/A

Color Name	VL No.	Similar To	VL2C (Wh 1/Wh 2)	VL4 (DMX Values)		
				Blue (6)	Amber (7)	Magenta (8)
Medium Blue-Green	284	Lee 116	9/14	99	136	230
Dark Peacock Green	286		8/13	N/A	N/A	N/A
Peacock Green	287	Lee 115	10/15	43	160	255
Dark Turquoise	289		11/15	43	165	255
Light Aqua	291		10/15	99	156	255
Aqua	295		8/14	108	189	255
Rosco Peacock Blue	298	Lux 73	N/A	116	140	255
Lee Steel Blue	299	Lee 117	N/A	130	136	255
1/4 CTB	301	Lee 203	N/A	210	175	255
1/2 CTB	303	Lee 202, Lux 61	N/A	255	191	255
Full CTB	307	Lee 201	15/0	146	177	255
City Blue	310	GAM 847, Polycolor 70	N/A	141	204	255
N.C. Blue	313	GAM 840, GAM 980	N/A	138	255	222
Slate Blue	318	Lee 161	N/A	N/A	N/A	N/A
Pale Blue	321	Lux 69	11/0	113	191	255
Lee Light Blue	325	Lee 118	10/0	51	203	255
Bright Blue	330	Lee 141	N/A	82	255	255
Medium Blue	342	Lee 132	9/0	103	254	169
Sea Blue	345	Lux 68, GAM 810	11/2	117	255	255
Icy Blue	350		10/2	99	255	167
Just Blue	355	Lee 79	8/0	N/A	N/A	N/A
Primary Blue	359	Lux 83, GAM 850	9/3	N/A	N/A	N/A
Dark Steel Blue	365		7/15	N/A	N/A	N/A
Deep Blue	371		7/0	53	255	0
Dark Blue	374	Lee 120	8/4	71	255	46
Royal Blue	380	GAM 905	6/4	38	255	80
Dark UV	401		5/1	N/A	N/A	N/A
Indigo	403	Lux 59	5/0	100	255	101
Congo Blue	406	Lee 181	6/1	101	255	101

Color Name	VL No.	Similar To	VL2C (Wh 1/Wh 2)	VL4 (DMX Values)		
				Blue (6)	Amber (7)	Magenta (8)
Darkest Lavender	409		12/1	109	255	109
Dark Rose Purple	411		3/4	101	255	118
Deep Lavender	415		12/4	77	255	121
Lilac	418		13/4	73	255	135
Special Dark Lavender	421		10/3	74	251	136
Cool Lavender	422	GAM 845	11/3	101	251	152
Pale Lavender	425		13/3	N/A	N/A	N/A
Mercury Vapor	429		13/4	46	255	118
Medium Violet	433	Lux 359	15/4	116	255	135
Dark Lavender	443	Lee 180	1/4	132	254	135
Lee Special Lavender	447	Lee 137	N/A	183	255	199
Twilight	451	GAM 915	N/A	145	255	255
Deep Lavender	455	GAM 948	15/3	123	255	135
Pale Lilac	461		2/4	136	255	139
Periwinkle	463	GAM 960, GAM 970	0/3	158	255	148
Dusty Lavender	466		15/2	181	255	199
No Color Lilac	468	Lux 52	1/2	216	255	165
Special Lavender	469	Lux 54	N/A	211	255	189
Dark Rose	471		3/1	134	255	97
Dark Fushia	474	Lux 358	14/1	132	255	97
Dark Follies Pink	476		15/1	255	254	67
Magenta	478	Lee 126	15/1	155	193	64
Hot Pink	480		0/1	255	193	64
Mauve	483		1/1	255	172	69
Follies Pink	489		N/A	255	163	84
Flesh Pink	491		N/A	255	255	115
Rose Purple	492	Lux 48	N/A	209	255	118
Carnation	494		N/A	255	199	131
No Color Pink	495		0/2	255	185	131
Cool Bastard Amber	496	Lux 52, Lux 33	0/2	211	255	152
Dusty Rose	497		2/2	255	175	148
Rouge	498		N/A	206	173	152